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PHYLLIS BARCLAY-SMITH, F.Z.S.

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 1951 EGGLESTON, J. W. ; 38 Lingry Close, Dalston, Carlisle, Cumberland.
 1949 ELEEN, T. ; 29 Desborough Crescent, West Derby, Liverpool.
 1926 ELWES, Mrs. ROBERT ; Little Congham, King's Lynn, Norfolk.
 1949 ENEHJELM, C. AF ; Högholmens Djurgård, Helsingfors, Finland.
 1935 ENGELBACH, Dr. PIERRE ; 64 rue Saint-Denis, Colombes (Seine), France.
 1950 EVANS, F. J., F.Z.S. ; 51 Brunswick Road, Leyton, E. 10.
 1951 EVANS, G. ; 25 The Crescent, Goldenhill, Stoke-on-Trent, Staffs.
 1929 EVANS, Miss JOAN ; Townsend, Middle Wallop, Hants.
 1950 EVANS, R. E., M.B., Ch.B. ; 27 Hillhouse Street, Balornock, Glasgow, N.
 1951 EVERETT, H. C. ; Route 1—Box 465, Novato, Calif., U.S.A.
- 1951 FALTIS, J. ; 215 Freeman Street, Woodland, Calif., U.S.A.
 1949 FANCUTT, FRANK, F.Z.S. ; 86 Linden Drive, Alvaston, Derby.
 1946 FAUDELL, C. L. ; 45 Dickason Road, Heathmont, Ringwood, Victoria, Australia.
 1950 FELL, J. ; 34 St. Faith's Street, Lincoln.
 1951 FELSTEAD, Miss M. ; 19 Leander Road, Thornton Heath, Surrey.
 1948 FENTON, H., F.Z.S. ; 48 Porchester Terrace, London, W. 2.
 1948 FIELD, H. C. ; 79 Weoley Park Road, Selly Oak, Birmingham, 29.
 1950 FIERKE, FRED G. ; 602 Point Basse Avenue, Nekoosa, Wisconsin, U.S.A.
 1950 FIERLAFIJN, J. ; Karel Oomstraat 24, Antwerp, Belgium.
 1952 FIORAVANTI, The Marquis ; Bellosguardo 14, Florence, Italy.
 1950 FISHER, A. ; 25 Drapers Field, Coventry.
 1951 FLETCHER, J. ; 6511 Francis Avenue, Seattle, Washington, U.S.A.
 1945 FLOOD, CEDRIC L., F.Z.S. ; The Royal Zoological Society of Ireland, Phoenix Park, Dublin.
 1935 FLOYD, J. F. M., M.A., M.B.O.U. ; High Bridge Mill, Cuckfield, Sussex.
 1948 FOGG, H. ; 7 Elmbridge Road, Perry Barr, Birmingham.
 1925 FOOKS, F. E. ; Clères, Seine Inférieure, France.
 1932 FOOKS, H. A. ; Kestrels, Holmshurst, Burwash, Sussex.
 1951 FORD, J. ; 186 Woolwich Church Street, Woolwich, S.E. 18.
 1937 FOSTER, H. F. B. ; Park House, Drum Oak, Aberdeenshire.
 1951 FOTHERGILL, Miss S. A., F.Z.S. ; 8 Whitelands House, Sloane Square, S.W. 3.
 1951 FRANK, A. ; "Grantully," De Waal Road, Dieys River, Cape Town, South Africa.
 1933 FRAYNE, RALPH ; 50 Cantley Lane, Bessacarr, Doncaster.
 1945 FREEMAN, CHARLES R., F.Z.S. ; 7 Valentine Crescent, Caversham, Reading, Berks.
 1950 FRILING, W. ; Eikelenberg, Brasschaat, Nr. Antwerp, Belgium.
 1950 FROST, R. ; The Gravels, Station Road, Brimington, Chesterfield.
 1908 FROST, WILFRED J. C. ; c/o Zoological Society of London, Regent's Park, London, N.W. 8.
 1947 FROSTICK, W. B. ; 26 Minster Precincts, Peterborough, Northants.
 1929 FURNER, A. C. ; Oakdene, 115 Whitaker Road, Derby.
- 1950 GADD, J. A. ; 75 Holly Road, Aldershot, Hants.
 1948 GALLAND, JOHN F. ; 197 Fraser Street, Howick, Pietermaritzburg, Natal, South Africa.

- 1941 GARDNER, A. H. ; 21 Kingsland Road, Strathfield, Sydney, N.S.W., Australia.
- 1951 GARNER, R. ; 1 Arno Vale Gardens, Woodthorpe, Nottingham.
- 1951 GARRATT, J. C. ; Wychwood Farm, Shermanbury, nr. Horsham, Sussex.
- 1949 GARY, F. L. ; Earlham, Columbus, New Jersey, U.S.A.
- 1950 GASK, Miss D., F.Z.S. ; "Twa Noon," Lincoln Road, Chalfont-St.-Peter, Bucks.
- 1950 GAUNT, M. W. ; 48 Ainsdale Road, Western Park, Leicester.
- 1950 GAUNTLETT, PHILIP W. ; Bury Farm, Hertingfordbury, Herts.
- 1951 GAWTHROP, L. E. ; 119 Barnhill Road, Wembley Park, Middx.
- 1948 GEERTSEMA, Major C. C. ; Boschwyk, Soestdyk, Holland.
- 1950 GEMMILL, JOHN ; Aikenhead, Kilmarnock, Ayrshire.
- 1948 *GERARD, Hon. ROBERT, M.B.O.U. ; Blakesware, Ware, Herts.
- 1911 GHIGI, Professor ALESSANDRO, C.M.Z.S., M.B.O.U. ; Laboratorio di Zoologia Applicata Alla Caccia, Università di Bologna, S. Giacomo 9, Bologna, Italy.
- 1948 GIBBS, DENNIS G. ; 49 Portland Road, Toton, Beeston, Notts.
- 1948 GIBSON, R. H. ; R.R.2, Box 336, St. Helena, Calif., U.S.A.
- 1950 GILBERT, W. O., F.Z.S. ; 31 Douglas Road, Luton, Beds.
- 1950 GILBERT, Mrs. W. O., F.Z.S. ; 31 Douglas Road, Luton, Beds.
- 1948 GILL, J. M. ; 20 Lancaster Road, Southall, Middx.
- 1946 GILLEN, JOHN ; Ballycraigy, Ballymena, Co. Antrim, N. Ireland.
- 1928 GLENISTER, A. G., F.Z.S., M.B.O.U. ; The Barn House, East Blatchington, Seaford, Sussex.
- 1950 GLENN, Mrs. EVA ; c/o Justrite Pet Foods, Ltd., P.O. Box 39, Station B., Hamilton, Ontario, Canada.
- 1931 GLOVER, PERCY H., F.Z.S. ; Broadlands, Fareham, Hants.
- 1951 GODELMAN, R. ; 16 Beattyville Gardens, Ilford, Essex.
- 1950 GODWIN, J. H. ; 21 Vincent Road, Osterley, Isleworth, Middx.
- 1950 GOETZ, L. DALE ; 113 So. St. Louis Avenue, Chicago 24, Illinois, U.S.A.
- 1950 GOMM, F. A. ; The Cave, Amersham Road, Hazlemere, High Wycombe, Bucks.
- 1933 GOODALL, A. W. ; 33 Stuart Avenue, Hunts Cross, Liverpool.
- 1945 GOODWIN, DEREK, M.B.O.U. ; Toft, Monk's Road, Virginia Water, Surrey.
- 1920 GOODWIN, TOM ; "Aves," Kiln Lane, Ripley, Surrey.
- 1945 GORDON, Mrs. BEATRICE HOOD CLAESON, F.Z.S. ; Cluny Castle, Monymusk, Aberdeen.
- 1951 GORDON, W. H., Jr. ; 2108 17th Street, Lubbock, Texas, U.S.A.
- 1923 *GOSSE, LADY ; Aldgate, South Australia.
- 1949 GOUGH, L. ; 101 Claypit Lane, West Bromwich, Staffs.
- 1935 GRANT, FRANK ; Parklands, Stoughton Lane, Evington, Leicester.
- 1951 GRAY, J. ; "Braemar," Dryburn Road, Durham Moor, Durham.
- 1950 GRAY, W. ; 81 Kirklington Road, Rainworth, Nr. Mansfield, Notts.
- 1950 GREEN, Mrs. G. H. ; 2 Pemberton Terrace, Upper Holloway, N. 19.
- 1926 GREEN, ROLAND, M.B.O.U. ; The Studio, Hickling Broad, Norfolk.
- 1952 GREGORY, J. J. ; 125 Cedar Hill Avenue, New Haven, Conn., U.S.A.
- 1950 GRIFFITHS, GRAYDON ; School House, Great Brickhill, Bletchley, Bucks.
- 1946 GRIFFITHS, WILLIAM ; Downs End, 152 Worple Road, Wimbledon, S.W. 19.
- 1947 *GRISWOLD, JOHN A. ; The Zoological Society, 34th Street and Girard Avenue, Philadelphia 4, Pa., U.S.A.
- 1951 GROUND, W. J. ; 56 Park Road, Spalding, Lincs.
- 1917 GROVES, Hon. Mrs. MCGAREL ; Battramsley House, Lymington, Hants.

- 1951 GRUBER, H. F., F.R.Z.S. (Scot.) ; 9 Churchill, Morningside, Edinburgh 10.
 1928 GUBBAY, Mrs. MAURICE ; c/o A. Ezra, Esq., Foxwarren Park, Cobham, Surrey.
 1951 GUDMUNDSSON, Dr. F. ; Museum of Natural History, P.O. Box 532, Reykjavik, Iceland.
 1908 GULBENKIAN, C. S. ; 214 Oxford Street, Oxford Circus, London, W. 1.
 1947 GULLIVER, V. S. ; 33 Vale Road, Aylesbury, Bucks.
 1951 GURDEN, R. W. ; 23 East St. Helen Street, Abingdon, Berks.
 1927 GURNEY, Miss DIANA ; North Runcion Hall, King's Lynn.
 1942 GUY, CHARLES P. ; Fullaford, Buckfastleigh, S. Devon.
- 1932 HACHISUKA, THE MARQUESS, F.Z.S., M.B.O.U. ; Atami, Shizuoka-ken, Japan.
 1939 HADDEN, NORMAN G. ; Underway, West Porlock, Somerset.
 1951 HAITH, J. E. ; Park Street, Cleethorpes, Lincs.
 1948 HALE, O. ; Laithfield, Digswell, Welwyn, Herts.
 1951 HALL, R. E., M.D. ; Steinbergerstrasse 25, Wiesbaden, Germany.
 1943 HALLSTROM, E. J. L., F.R.Z.S. ; 462 Willoughby Road, Willoughby, Sydney, N.S.W., Australia.
 1937 HALVERSON, A. W. ; 5705 West Erie Street, Chicago 44, Ill., U.S.A.
 1926 HAMPE, ALEX ; 13a Grub am Forst bei Coburg, Bavaria, American Zone, Germany.
 1950 HANSEN, E. ; Shenley Nursery, Puckeridge, Nr. Ware, Herts.
 1946 HANSEN, PAUL ; Gormsgade 3, I. Sal, Odense, Denmark.
 1949 HANSEN, ROBERT J. ; P.O. Box 46, Gonzales, Calif., U.S.A.
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 1949 HARMAN, H. J. ; 10 Haydon Road, Dagenham, Essex.
 1950 HARMON, Mrs. VERA ; 3601 West 102nd Street, Inglewood 2, Calif., U.S.A.
 1950 HARRIS, ALEX J., Jr. ; Pendleton, Virginia, U.S.A.
 1951 HARRIS, Mrs. E. ; 11 Prince Albert Street, Dudley, Worcs.
 1951 HARTLEY, R. A. ; "Bowdon," Shelly Bay, Bermuda.
 1945 HARVEY, ARTHUR W. H. ; Rydal, Long Rock, Penzance, Cornwall.
 1951 HATCH, H. L. ; The Dudley Zoological Society, Dudley, Worcs.
 1946 HAVERSCHMIDT, Fr., M.B.O.U. ; P.O. Box 644, Paramaribo Surinam, Dutch Guiana.
 1946 HAYWARD, Mrs. D. A. ; Invermay, Highland Avenue, Brentwood, Essex.
 1950 HEARD, A. C. ; The Cedars, Baschurch, Shrewsbury.
 1947 HEATH, R. E., B.A., M.B.O.U. ; 2 Pembroke Court, Edwardes Square, W. 8.
 1949 HEFT, ELMER A. ; Green Lake, Wisconsin, U.S.A.
 1949 HENDY, Major H. R. ; Nyamazani, P.O. Box 46, Mbabane, Swaziland, S. Africa.
 1945 HENRY, B. R., M.B., B.Ch., D.H.P. ; Four Winds, Comber, Belfast.
 1951 HERMITAGE, R. ; 53 Burnt Oak Terrace, Gillingham, Kent.
 1951 HILL, K. ; 95 First Avenue, Manor Park, London, E. 12.
 1939 HILL, W. C. OSMAN, M.D., Ch.B., F.L.S., F.Z.S. ; Lancaster House, Prince Albert Road, London, N.W. 8.

- 1945 HINDLE, E., M.A., Sc.D., F.R.S., F.L.S., F.Z.S. ; c/o The Zoological Society of London, Regent's Park, N.W. 8.
- 1929 HIRST, A. ; Box 262DD, G.P.O., Sydney, N.S.W., Australia.
- 1926 HIRST, ROBERT S., F.Z.S. ; Swincliffe House, Gomersal, Nr. Leeds.
- 1947 HODGES, J. R., F.Z.S. ; 93 Raglan Court, Empire Way, Wembley, Middx.
- 1922 HOLLAS, Mrs. K. E., F.Z.S. ; Hothersall Hall, Ribchester, Nr. Preston, Lancs.
- 1930 *HOLLOND, Miss GLADYS M. B. ; Great Ashfield House, Bury St. Edmunds, Suffolk.
- 1943 HOLLOWAY, JACK, F.Z.S. ; 59 Holyrood Gardens, Stag Lane, Edgware, Middx.
- 1951 HOLM, BJÖRN ; Kyrkogatan 5, Kiruna, Sweden.
- 1950 HOLT, E. ; " Mansdale," West Common, Redbourn, Herts.
- 1951 HOPKINSON, Miss E. M. ; " Wynstay," Balcombe, Nr. Haywards Heath, Sussex.
- 1928 HORNE, DOUGLAS PERCY ; Audley Lodge, Addlestone Park, Addlestone, Surrey.
- 1948 HOSKEN, JOHN H. ; P.O. Box 667, Johannesburg, South Africa.
- 1950 HOUGARDY, Mrs. A. ; 615 Baywood Avenue, San Jose, Calif., U.S.A.
- 1934 HOUSDEN, Major E. F., M.C., T.D., M.A., F.Z.S. ; Hillside, Peterborough Hill, Harrow-on-the-Hill, Middlesex.
- 1948 HOUSDEN, EDWIN J. T. ; Mulberry Hill, Baughurst, Hants.
- 1933 HOUSDEN, LESLIE, O.B.E. ; Mulberry Hill, Baughurst, Hants.
- 1942 HOVELL, S. ; 29 Wood Lane, Long Sutton, Spalding, Lincs.
- 1950 HUGHES, N. D. ; 1 High Street, Hampton Hill, Middx.
- 1950 HUMPHRYS, F. ; Dorothy Café, Commercial Street, Maesteg, Bridgend, Glam.
- 1952 HUNT, F. T. ; Waverley, The Park, Plumtree, Notts.
- 1939 HURLBURT, Dr. W. E. ; Vineland, Ontario, Canada.
- 1947 HUYTON, A. E. ; 55 Victoria Road, Great Crosby, Liverpool 23.
- 1940 ILES, GERALD, F.Z.S. ; Zoological Gardens, Belle Vue, Manchester 12.
- 1939 INDGE, H. J., F.Z.S. ; Trimstone, Thorpe, Nr. Egham, Surrey.
- 1948 IRVING, G. J. ; 2 Grove Road, Egremont, Cumberland.
- 1926 ISENBERG, A. H. ; P.O. Box 88, 647 Runnymede Street East, Palo Alto, California, U.S.A.
- 1950 JACKSON, ROBERT, F.Z.S. ; 1 Park Avenue, Timperley, Cheshire.
- 1951 JACOBSON, OWE ; Kaprifolgatan 4, Malmö, Sweden.
- 1950 JAMES, N. ; 1 Central Drive, Fenton, Stoke-on-Trent.
- 1950 JAMIESON, J. ; 5 Park Lane, Lerwick, Shetland.
- 1942 JANSON, CHARLES W. ; 16 Wilton Crescent, London, S.W. 1.
- 1930 JARVIS, Miss I. F. ; The Old Manor, Salisbury.
- 1947 *JASDAN, H. H. YUVRAJ SHREE SHIVRAJ KHACHAR ; The Palace, Jasdán (Kathiawar), India.
- 1948 JOHNSON, EDWARD J. ; Woodland Park Zoological Gardens, 5400 Phinney Avenue, Seattle, 3, Washington, U.S.A.
- 1952 JOHNSON, F. E. B. ; 15 Mill Road, Impington, Cambs.
- 1951 JOHNSTONE, S. T. ; The Severn Wildfowl Trust, The New Grounds, Slimbridge, Glos.
- 1949 JONES, C. G. ; 8416 N.E. 3rd Place, Route 1, Bellevue, Washington, U.S.A.
- 1933 JONES, F. Terry, F.Z.S. ; Leckford Abbas, Stockbridge, Hants.

- 1934 JONES, S. B. ; 265 Northway, Maghull, Nr. Liverpool.
 1950 JONES, Major V. DILWYN ; "Sherwood," Grosvenor Road, Llandrindod Wells, Radnor.
- 1951 KELLOGG, Mrs. F. M. ; Mill Pond Farm, Route 5, Ridgefield, Conn., U.S.A.
- 1927 KERR, J. E. ; Harviestoun, Dollar, Scotland.
- 1938 KING, H. T. ; 80 Bedale Road, Sherwood, Nottingham.
- 1948 KINGSTON, E. J. ; 12 Stotfold Road, King's Heath, Birmingham 14.
- 1950 KINGSTON, W. R. ; Springfields, Betchton, Sandbach, Cheshire.
- 1936 KINSEY, ERIC C. ; Box 76, Manor (Marin County), California, U.S.A.
- 1950 KIRK, KEITH C. ; 54 Station Road, Sutton-in-Ashfield, Notts.
- 1948 KIRKALDY, Mrs. M., F.Z.S. ; The Grove, Warley Mount, Brentwood, Essex.
- 1950 Knights, W. A. ; 144 Argyle Street, Cambridge.
- 1928 KNOBEL-HARMAN, Miss M. H., F.Z.S. ; 19 Connaught Square, London, W. 2.
- 1949 KOBER, Dr. LEO ; Wien IX, Hofergasse 18/3, Austria.
- 1947 LABDON, B. ; Millberne, Cullompton, Devon.
- 1951 LABELLE, R. ; 832 Beaubien Street Est., Montreal, P.Q., Canada.
- 1929 LAIDLAY, J. C. ; Holmwood, Perth, Scotland.
- 1951 LAKE, Dr. F. B. ; The White House, 5 Portsmouth Road, Kingston-on-Thames.
- 1937 LAKE, GEORGE D., M.B.O.U. ; Audreys, Burghfield Common, Reading, Berks.
- 1945 LAMB, A. ; Mount Pleasant, Hexham, Northumberland.
- 1951 LANDER, E. S. ; "Ashland," Hawkwell Park Drive, Hawkwell, Hockley, Essex.
- 1950 LANGBERG, WALTHER ; Tudskaervej 22, Copenhagen, Vanløse, Denmark.
- 1932 LANGHAM, Sir CHARLES, Bart. ; Tempo Manor, Co. Fermanagh, Ireland.
- 1919 LAW, SATYA CHURN, M.A., Ph.D., F.Z.S., M.B.O.U. ; 50 Kailas Bose Street, Calcutta, India.
- 1930 LAX, J. M. S. ; Southfield, Crook, Co. Durham.
- 1950 LAZELL, R. ; 116 The Sunny Road, Enfield Highway, Middx.
- 1949 LAZZERONI, IVO ; 5034 Templeton Street, Los Angeles 32, Calif., U.S.A.
- 1946 LEMON, Miss E. ; 1414 Pacific Highway, R.R.4, White Rock, B.C., Canada.
- 1949 LEVER, H. ; 14 April Street, C-on-M., Manchester, 13.
- 1950 LEVY, E. ; 22 Crossbow Road, The Lowe, Chigwell, Essex.
- 1946 LEWIS, W. O. ; Milnsbridge, Bicton Heath, Shrewsbury.
- 1951 LINDSAY, A. ; 422 Lake Street, Oak Park, Illinois, U.S.A.
- 1951 LIPPENS, LÉON ; Den Hul, 43 Boslaan, Knocke-Le Zoute, Belgium.
- 1941 LIVERMORE, JOHN W. ; 135 East 54th Street, Apt. 11 B., New York City, U.S.A.
- 1923** LODGE, GEORGE E., F.Z.S., M.B.O.U. ; Hawkhouse, Upper Park Road, Camberley, Surrey.
- 1949 LOMER, Lt.-Col. G., D.S.O., T.D. ; Scallet's Wood, Sidley, Bexhill-on-Sea.
- 1951 LOUWMAN, P. ; Dierenpark Wassenaar, Rijksweg 667, Wassenaar, Holland.
- 1939 *LOW, G. CARMICHAEL, M.A., M.D., F.R.C.P., F.Z.S., M.B.O.U. ; 7 Kent House, Kensington Court, London, W. 8.
- 1927 LOWE, Rev. J. R. ; The Vicarage, Coln Street, Aldwyn, Fairford, Glos.
- 1948 LOWES, J. R. ; Keeper's Lodge, Terling, Nr. Chelmsford, Essex.

- 1951 LUCAS, V. J. ; Park House, West Rasen, Market Rasen, Lincs.
 1947 LUMSDEN, Lt.-Col. WILLIAM V. ; Sluie, Banchory, Aberdeenshire, Scotland.
 1948 LUNING, Mrs. NICHOLAS T. ; 50 Sheridan Road, Oakland 18, Calif., U.S.A.
 1946 LYELL, MALCOLM C. A. ; 7 Upper Brook Street, London, W. 1.
 1947 LYNCH, G., F.Z.S. ; 21 Sunnycroft Road, Hounslow, Middx.
 1927 LYON, Capt. the Hon. Michael ; Glamis Castle, Glamis, Forfarshire.
- 1951 MABEY, R. N. ; Continental Bank Building, Salt Lake City, Utah, U.S.A.
 1948 MACK, H. G. ; c/o Gilson Manufacturing Co., Ltd., Guelph, Ontario, Canada.
 1948 MACKENSEN, RICHARD S. ; Yardley, Pa., U.S.A.
 1947 MAITLAND, Miss M. C. ; North Lodge, Goring-by-Sea, Sussex.
 1948 MALISOUX, Madame YVAN ; Beez, Namur, Belgium.
 1950 MALLEN, A. ; 34 Willingsworth Road, Ocker Hill, Nr. Wednesbury, Staffs.
 1950 MARR, Miss PATRICIA ; "Cerfbois," RFD East Haddam, Connecticut, U.S.A.
 1946 MARSHALL, D. A. ; 2 Fullarton Crescent, Troon, Ayrshire.
 1950 MARSHALL, J. C. ; 25 Stevens Road, Sandiacre, Notts.
 1930 MARTIN, A. ; 26 Somerford Road, Reddish, Stockport.
 1950 MARTIN, DON H. ; Route 1, Box 748, Auburn, Washington, U.S.A.
 1950 MARTIN, JOHN ; 1 Chapel Square, Coleraine, Co. Londonderry, Ulster.
 1934 MASON, Miss EVA INGLIS ; Peppercorn Cottage, Burton, Christchurch, Hants.
 1951 MASON, H., M.C., F.Z.S. ; 2 Dunstan Road, London, N.W. 11.
 1952 MASON, L. M. ; Talbot Manor, Fincham, King's Lynn, Norfolk.
 1935 MATTHEWS, Mrs. W. M. ; Glandore, New Park Road, Cranleigh, Surrey.
 1950 MAXWELL, ALEXANDER ; Route 1, Box 805, Yakima, Washington, U.S.A.
 1908 MAXWELL, C. T. ; 1 Shardcroft Avenue, Herne Hill, London, S.E. 24.
 1941 MAXWELL, Major GAVIN, F.R.G.S., F.Z.S. ; Monreith, Whauphill, Wigtownshire.
 1929 MAXWELL, P. H., F.Z.S., M.B.O.U. ; c/o Zoological Society of London, Whipsnade Park, Nr. Dunstable, Beds.
 1913 *MAXWELL-JACKSON, Miss M., F.Z.S. ; Percy House, Scotton, Knaresborough, Yorks.
 1922 *MAYER, F. W. SHAW, C.M.Z.S. ; c/o The Chartered Bank of India, A. and C., Singapore, S.S.
 1951 MAYNARD, Miss E. ; 132a High Street, West Wickham, Kent.
 1951 MEADOWS, R. ; c/o Philadelphia Zoological Garden, 34th Street and Girard Avenue, Zone 4, Philadelphia, U.S.A.
 1948 MEEREN, MICHEL BRAUN DE TER. ; L'Hesidelle, Archennes, par Grez-Doiceau, Belgium.
 1935 MERCK, Dr. WOLFGANG ; Marienhöhe 4, Hamburg-Blankenese, Germany.
 1950 MERRY, C. ; 89 King William Street, Tunstall, Stoke-on-Trent.
 1938 MEYER, JOHN D. ; H. and J. Farm, Clinton Hollow, R.F.D., Staatsburg, N.Y., U.S.A.
 1951 MIDDLETON, G. ; 50 Carter Street, Ottoxeter, Staffs.
 1951 MIDWINTER, J. ; 62 Oxford Road, Burford, Oxford.
 1948 MISUD, HENRY J., M.B.R.C., F.Z.S. ; 29 Luke Briffa Street, Gzira, Malta.
 1951 MILLER, H. E. ; "Westwater," Tedburn St. Mary, Nr. Exeter, Devon.
 1950 MILLER, R. C. ; Standard Bank of South Africa, Ltd., Pietermaritzburg, Natal, S. Africa.
 1937 MILLIGAN, H. ; Upper Manor Farm, Leckford, Stockbridge, Hants.

- 1951 MILLIGAN, I. B. ; 21A Stamford New Road, Altrincham, Cheshire.
 1951 MILNE, R. S. ; 18 Silverwell Street, Bolton, Lancs.
 1929 MILNES-COATES, Sir CLIVE, Bart., F.Z.S. ; 13 Hyde Park Gate, London, S.W. 7.
 1937 MILTON, Capt. STANLEY ; 75 Portland Avenue, Gravesend, Kent.
 1948 MITCHELL, A. ; 16 Albany Street, Hull, Yorks.
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 1950 MITCHELL-FOX, Mrs. E. M. ; Tresawle, Wheatridge Lane, Livermead, Torquay, Devon.
 1951 MOFFIT, C. ; 3 Hartley Avenue, Monkseaton, Northumberland.
 1926 MOODY, A. F. ; Lilford, Oundle, Peterborough.
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 1950 MOORE, J. T. ; 17 Gold Street, Wellingborough, Northants.
 1928 MOORE, ROBERT T. ; 582 Meadow Grove Place, Flintridge, Pasadena, 3, Calif., U.S.A.
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 1949 MORNY, C. J. ; 52 Draycott Place, London, S.W. 3.
 1931 MORRISON, A., F.Z.S., M.B.O.U. ; Sarikei, Sarawak.
 1947 MOSFORD, FRANK ; The Elms, Churton Heath, Saighton, Nr. Chester.
 1927 MOTT, B. ; The Croft, Bittell Road, Barnt Green, Worcs.
 1929 MOTTERSHEAD, G. S., F.Z.S. ; Zoological Gardens, Chester.
 1923 MOUNTAIN, Capt. WALTON ; Groombridge Place, Groombridge, Kent.
 1949 MUNDEN, N. J. ; Wilmer Lodge, Epsom Road, Guildford, Surrey.
 1947 MURRAY, H. ; Bracken, Cornsland, Brentwood, Essex.
 1939 MURRAY, RAY ; 12 High Road, Camberwell, E. 6, Victoria, Australia.
 1949 MURRAY, SAMUEL, F.Z.S. ; 18 Somerset Gardens, Lewisham, S.E. 13.
 1950 MYCOCK, A. ; 100 Park Street, Heanor, Derbyshire.
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 1951 McEVEDY, Dr. B. V. ; Rangemore, Bucklow Hill, Knutsford, Cheshire.
 1950 McGOWAN, H. ; 13 Robertson Way, Ash, Aldershot, Hants.
 1950 McKENZIE, D. L. ; The New Inn, Winchelsea, Sussex.
 1927 McLINTOCK, Miss M. H. ; The Grove, Catton Grove Road, Norwich.
 1934 NAETHER, Professor CARL ; 4442 Woodman Avenue, Sherman Oaks, California, U.S.A.
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 1930 NEWILL, D. S., M.D. ; Box 634, Connellsville, Pa., U.S.A.
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 1915 NEWMARCH, C. T., F.Z.S. ; 56 Riddlesdown Avenue, Purley, Surrey.
 1951 NICHOLLS, F. W. ; Brookfield House, Belbroughton, Nr. Stourbridge, Worcs.
 1931 NICHOLSON, N. ; Edenvale, 16 Weardale Place, Stockton-on-Tees.
 1950 NICHOLSON, W. ; 196 Neasham Road, Darlington.
 1947 NICOLLAUD, J. G. ; 48 rue Descartes, Chinon, France.
 1933 NIGHTINGALE, Capt. F. B., F.R.I.B.A. ; c/o Ministry of Town and Country Planning, Government Buildings, Kenton Bar, Newcastle-upon-Tyne 3.
 1950 NIXON, JOSEPH ; 5 Bank Street, Carlisle.
 1947 NOBLE, R. A. W. ; Little Grange, Canterbury Road, Margate, Kent.
 1948 NOORDZIJ, J. H. ; Burg. Visserpark 13, Alphen a/d Rijn, Holland.
 1930 NORCROSS, HERBERT ; Normanhurst, 22 Mount Road, Middleton, Lancs.

- 1949 NOREEN, GEORGE W. ; 2875 Fairview North, Seattle 2, Washington, U.S.A.
- 1939 NORRIS, KENNETH A., F.Z.S., M.B.O.U. ; Elmstone, 45 Highfield Road, Purley, Surrey.
- 1951 NOURSE, DUDLEY ; "Content," 4 Earlswood Place, Durban North, Natal, South Africa.
- 1950 OLIVER, JOHN W. ; R.I. Box 606, Encinitas, Calif., U.S.A.
- 1950 OLIVIER, GEORGES, F.Z.S., M.B.O.U. ; 6 rue Ch.-Flavigny, Elbeuf (Seine Inférieure), France.
- 1950 OLLEY, A. W. ; Lytlewood, Riding Lane, Hildenborough, Kent.
- 1945 OLSON, LEO B. ; 835 South First Street, De Kalb, Illinois, U.S.A.
- 1951 O'MALLEY, B. ; Anchor Buildings, Westport, County Mayo, Ireland.
- 1950 OSBORN, H. C. ; 4 Hill Cotts, Woodham Ferrers, Nr. Chelmsford, Essex.
- 1928 OSTREHAN, CLEMENT ; Kington Rectory, Worcester.
- 1947 OVEREND, Miss EUNICE ; 49 Alexandra Road, Frome, Somerset.
- 1944 PALMELLA, His Excellency the Duke of, F.Z.S. ; 116 Rua Escola Polytechnica, Lisbon, Portugal.
- 1951 PALMER, C. L. ; 102 Paston Lane, Peterborough.
- 1906 PAM, Major ALBERT, O.B.E., M.A., F.L.S., F.Z.S. ; Wormleybury, Broxbourne, Herts.
- 1950 PANTING, PETER J. ; "Belle Vue," Main Street, Goodwick, Pems.
- 1950 PARFITT, N. D. ; 8 "Sweetleaze", Stoke St. Michael, Oakhill, Bath, Somerset.
- 1950 PARREN, RONALD J. ; Lindon House, South Brink, Wisbech, Cambs.
- 1934 PARTRIDGE, W. R., F.Z.S. ; Larches, Nr. Fladbury, Pershore, Worcester-shire.
- 1949 PAYN, Major W. H., M.B.E., M.B.O.U. ; Hartest Place, Bury St. Edmunds, Suffolk.
- 1950 PAYNE, C. M. ; Sherbourne Priors, Warwick.
- 1929 PEARSE, Mrs. A. A., F.Z.S. ; Flamstead House, Flamstead, Nr. St. Albans, Herts.
- 1951 PEARSON, J. C. ; 63 St. Michael's Road, Aldershot, Hants.
- 1946 PEARSON, RAYMOND, 179 West Auckland Road, Darlington, Co. Durham.
- 1951 PEASE, Mrs. S. ; R.D. 4, North Harmony Road, Freehold, N.J., U.S.A.
- 1940 PEAT, RODERICK M., F.Z.S. ; 11 Ironmonger Lane, London, E.C. 2.
- 1948 PHILLIPS, Mrs. A. ; 3 Pond Road, Blackheath, S.E. 3.
- 1950 PHILPOTT, H. R. ; 200 Cumberland Road, Kensington, Johannesburg, S. Africa.
- 1935 PHIPPS, Mrs. L. N., F.Z.S., M.B.O.U. ; The Manor House, Minster Lovell Oxon.
- 1903 PICKFORD, RANDOLPH JOHN ; c/o The Manager, Midland Bank Ltd., 629 Attercliffe Road, Sheffield 9.
- 1948 PINFIELD, S. N. ; 95 Pinfold Lane, Penn, Wolverhampton.
- 1951 PINKER, B. E. ; 5 Bouquet Street, Rosettenville, Johannesburg, Transvaal, South Africa.
- 1934 PITT, W. S. ; Wildwood, Silverdale Avenue, Walton-on-Thames, Surrey.
- 1924 PLATH, KARL ; 305 S. Cuyler Avenue, Oak Park, Illinois, U.S.A.
- 1947 PODMORE, C. R. ; 352 Carter Knowle Road, Ecclesall, Sheffield 11.
- 1949 POHLE, HORST C. ; Fichtestrasse 7, Bayreuth, Germany.
- 1937 POLAK, Dr. A. C. ; Spoorstraat 15, Amersfoort, Holland.
- 1925 POLTIMORE, Lady ; Court House, North Molton, N. Devon.

- 1950 PORTER, J. E. ; West Leigh, 17 Newminster Road, Fenham, Newcastle-upon-Tyne 4.
- 1920 PORTER, SYDNEY, F.Z.S., M.B.O.U. ; The White Gates, 149 Stenson Road, Derby.
- 1914 POTTER, BERNARD E., M.B., M.R.C.S., L.R.C.P., F.Z.S. ; 39 Devonshire Place, London, W. 1.
- 1928 PRESTWICH, ARTHUR A. ; 61 Chase Road, Oakwood, N. 14.
- 1946 PRESTWICH, Mrs. J. A. ; Coltishall, Broad Walk, Winchmore Hill, N. 21.
- 1951 PRIEST, Dr. A. A. ; 434-6 Acheson Building, 2131 University Avenue, Berkeley 4, Calif., U.S.A.
- 1943 PUGH, M. C. ; 99 Marlborough Road, Swindon, Wilts.
- 1948 QUENBY, H. F. ; "Standard" House, High Street, Baldock, Herts.
- 1913 QUINCEY, R. S. DE Q., F.Z.S. ; The Vern, Bodenham, Hereford.
- 1948 RABBIN, HILBERT J., I.S.O. ; 33 Kingsway, Wembley.
- 1949 RAGAN, CALVIN ; P.O. Box 7, Bell, California, U.S.A.
- 1943 RANKIN, Lieut.-Col. N., F.R.G.S., F.R.P.S. ; House of Treshnish, Calgary, Isle of Mull, Argyll, Scotland.
- 1950 RATH, JOSEF ; Moosburger Strasse 3, Pfaffenhofen-Jlm (Oberbayern), Germany.
- 1939 RAVEN, WILLIAM H., O.B.E. ; The Mill House, Newbold-on-Stour, Nr. Stratford-on-Avon.
- 1950 RAYMAEKERS, L. ; 71 Avenue Molière, Brussels, Belgium.
- 1947 REAY, J. H. ; Cranmore, The Close, Court Drive, Hillingdon, Middx.
- 1950 REED, Miss D. A. ; 38 Markham Street, Chelsea, S.W. 3.
- 1950 REED, Mrs. E. CAROLINE WARMINGTON ; Weald's Gate, Wadhurst, Sussex.
- 1948 REED, Miss JEAN ; "Cerfbois," R.F.D., East Haddam, Connecticut, U.S.A.
- 1950 REES, D. W. ; 79 King's Road, Canton, Cardiff, S. Wales.
- 1950 REES, FRED ; Leckford, Stockbridge, Hants.
- 1939 REID, Miss MARION C. ; c/o Messrs. John Reid, Ltd., Walt Street, Newcastle, N.S.W., Australia.
- 1951 REID-HENRY, D. M. ; 43 West View Drive, Woodford Green, Essex.
- 1951 RENDELL, R. G. ; 60 Guinions Road, High Wycombe, Bucks.
- 1949 RETHERS, FRANK A. ; 605 Market Street, San Francisco 5, Calif., U.S.A.
- 1952 RETIEF, J. E. ; 56 Lincoln Street, Bellville, Cape Province, South Africa.
- 1928 REVENTLOW, AXEL ; Zoologisk Have, København F., Denmark.
- 1946 RICARDO, Mrs. MARY C. ; Audreys, Burghfield Common, Reading, Berks.
- 1950 RICH, JOSEPH W. ; 1073 West 11th Street, San Pedro, Calif., U.S.A.
- 1949 RICHARDSON, JAMES ; 101 Stockton Lane, York.
- 1948 RIIS-HANSEN, KAI ; Nørre Alle 75, Glostrup, Denmark.
- 1937 RIPLEY, S. DILLON, Ph.D., M.B.O.U. ; Kilravock, Litchfield, Conn., U.S.A.
- 1935 RIDON, D. H. S. ; The Dudley Zoological Society, Dudley, Worcs.
- 1951 ROBERTS, C. ; Chedington Court, Beaminster, Dorset.
- 1943 ROBERTSON, Dr. A. R. ; P.O. Box 1, Vrede, O.F.S., South Africa.
- 1951 ROBERTSON, J. M. ; Rosearden, Petrie Crescent, Elgin, Morayshire.
- 1947 ROBINSON, B. E. ; Field House, Blackborough Road, Reigate, Surrey.
- 1951 ROBINSON, G. E. ; 487 Little Horton Lane, Bradford.
- 1951 ROLPH, W. ; Undley Lodge, Lakenheath, Suffolk.
- 1945 ROONEY, JAMES P., M.B.O.U. ; 1514 South 12th Avenue, Yakima, Washington, U.S.A.

- 1946 ROOTE, CYRIL C. ; 116 Cardinal's Walk, Scraftoft Lane, Leicester.
 1951 ROYDEN, T. W. E. ; Fleggburgh, Norfolk.
 1950 RUSSELL, BARNABAS, F.R.S.A., F.Z.S., F.R.H.S. ; 20 Bucklersbury, Hitchin, Herts.
 *927 RYCROFT, Mrs. VIOLET ; Grey Gables, Cirencester, Glos.
- 1944 SALTER, Capt. JOHN ; c/o Dr. John W. Salter, 724 North Golden West, Temple City, California, U.S.A.
 1951 SALTERI, D., F.Z.S. ; 44 Montrose Terrace, Edinburgh, 7.
 1945 SAUNDERS, RONALD, F.Z.S. ; Regent Parade, Sycamore Road, Amersham, Bucks.
 1950 SAWDEN, M. ; Farm House, H.M.B.I., Feltham, Middx.
 1949 SAWYER, R. C. J., F.Z.S. ; 226 Haggerston Road, London, E. 8.
 1951 SCHUMACHER, Mrs. H. L. ; 7027 Sycamore Avenue, Seattle 7, Washington, U.S.A.
 1914 SCHUYL, D. G. ; Kralingscheweg 332, Rotterdam O, Holland.
 1934 SCOTT, A. H., F.Z.S. ; Abbotswell, Frogham, Fordingbridge, Hants.
 1912 SCOTT, Capt. B. HAMILTON ; Drayton, Foxhall Road, Rushmere St. Andrew, Ipswich.
 1938 *SCOTT, PETER, M.B.E., D.S.C., M.A., F.Z.S., M.B.O.U. ; The New Grounds, Slimbridge, Gloucestershire.
 1928 SCOTT-HOPKINS, Capt. C., F.Z.S. ; Knoll House, Shiplake, Oxon.
 1951 SCRIGGIN, J. B. ; Helotes, Texas, U.S.A.
 1951 SEAGO, J., F.Z.S. ; Hall Common, Ludham, Norfolk.
 1951 SEARS, JOHN L. ; Reel Hall, Shamley Green, Guildford, Surrey.
 1951 SEATON, Major C. P. H. ; 62 Picardy Road, Belvedere, Kent.
 1943 SECOR, WARD J. ; 103 Grant Court, Olean, New York, U.S.A.
 1951 SHAFFER, B. ; 3006 South West Temple, Salt Lake City, Utah, U.S.A.
 1940 SHAND, W. PATERSON ; (address unknown).
 1932 SHEARING, A. P. ; The Aviaries, Foxwarren Park, Cobham, Surrey.
 1944 SHEARMAN, CHARLES S. ; "Malverno," 238 Main Road, Pinetown, Natal, S. Africa.
 1951 SHELLIM, Dr. M. A. ; 7 Middleton Mansions, Calcutta 16, India.
 1949 SHELTON, LARRY C. ; P.O. Box 363, Harriman, Tenn., U.S.A.
 1923 SHERRIFF, A., F.Z.S., M.B.O.U. ; Edge Hill, 8 Ranulf Road, London, N.W. 2.
 1950 SHORNEY, E. G. ; 15 Sandall Close, Ealing, W. 5.
 1949 SHORTMAN, H. K. W., F.Z.S. ; 45 Commercial Street, Newport, Mon.
 1946 SIBLEY, A. E., F.Z.S. ; 15 Windsor Crescent, Harrow, Middx.
 1934 SIBLEY, C. L. ; Sevenfires, 111 Main Street, Nantucket, Mass., U.S.A.
 1904 SILVER, ALLEN, F.Z.S., M.B.O.U. ; Birdsacre, Llantarnam, Mon.
 1924 SIMPSON, H. W. ; 6 Barry Road, Stonebridge, Willesden, N.W. 10.
 1937 SIMPSON, Mrs. M. K. M. ; The Hollies, Limekilns, Dunfermline, Fife.
 1932 SIMSON, Capt. RUPERT, O.B.E. ; Malt Cottage, 74 Bell Street, Henley-on-Thames, Oxon.
 1947 SLADER, W. T., J.P. ; Pentillie, Honiton Road, Exeter.
 1941 SMITH, E. WILFORD ; "Lynwood," 15 Kingsway Road, Leicester.
 1950 SMITH, J. DONALD ; Game Conservationist, Board of Commissioners of Agriculture and Forestry, Honolulu 1, Hawaii.
 1947 SMITH, KENNETH J. ; Paignton Zoological Gardens, Paignton, Devon.
 1951 SMITH, Mrs. R. A. ; Rosemead, Beckford, Nr. Tewkesbury, Glos.

- 1952 SMITH, S. ; c/o Henry Sotheren, Ltd., 2-5 Sackville Street, Piccadilly, London, W. 1.
- 1950 SMITH, W. H. ; 3 Gladstone Terrace, Long Rock, Penzance, Cornwall.
- 1917 SMITH, W. PROCTER, F.Z.S. ; Bexton House, Knutsford, Cheshire.
- 1946 SOANES, ARTHUR C. ; The Fishery Inn, Elstree, Herts.
- 1950 SOAR, E. R. ; 50 Harvey Road, West End Road, Greenford, Middx.
- 1951 SOUTH, E. A. ; P.O. Box 487, Colusa, Calif., U.S.A.
- 1949 SPACKMAN, G. DONALD, Jr. ; Hill Farm, Coatesville, Penna., U.S.A.
- 1951 SPEEL, C. ; Saxenburgweg 9, Bloemendaal, Holland.
- 1923 SPRAWSON, Professor Evelyn, M.C., D.Sc., M.R.C.S., F.Z.S. ; Cranford, Welcomes Road, Kenley, Surrey.
- 1923 SPURWAY, N. B. ; Delamere, 325 London Road, Leicester.
- 1939 SQUIRE, E. O. ; Basmead Manor, St. Neots, Hunts.
- 1950 STATHAM, P. ; 32 Elm Avenue, East Leake, Notts.
- 1948 STEEL, G. ; 24 Mariners Cottages, South Shields, Co. Durham.
- 1939 STEINBECK, J. W. ; P.O. Box 832, Concord, California, U.S.A.
- 1932 STEVENS, RONALD ; Walcot Hall, Lydbury North, Shropshire.
- 1922 STOKES, Capt. H. S., M.C., F.Z.S. ; Longdon, Rugeley, Staffordshire.
- 1928 STORMONTH-DARLING, P. ; 7 Egerton Court, Harrington Road, London, S.W. 7.
- 1951 STRAIGHT, WHITNEY, C.B.E., M.C., D.F.C. ; The Aviary, Windmill Lane, Southall, Middx.
- 1948 STRANGE, FRANK E. ; 611 S. Broadway, Redondo Beach, California, U.S.A.
- 1948 STRETCH, H. ; 119 Wilton Road, Salisbury.
- 1950 STROMBERG, D. ; "The Aviary," 57 Elgin Road, Seven Kings, Essex.
- 1930 STROMBI, Miss DORA A. ; Eastbank House, Brechin, Angus.
- 1943 STRÖMGREN, CARL-IVAR ; (address unknown).
- 1949 STRUTT, Hon. PETER A. ; Bentley Park, Ipswich, Suffolk.
- 1950 STURGIS, A. F. ; 740 Sansom Street, Philadelphia 6, Pa., U.S.A.
- 1938 SUTTON, PETER, M.R.C.V.S. ; 11 Culverden Park Road, Tunbridge Wells.
- 1951 SVANE, C. H. ; Frederikssundsvej 168, Brønshøj, Copenhagen, Denmark.
- 1950 SVERRE, ERIK, Jr., Box 15, Skoyen, Norway.
- 1950 SVOBODA, Dr. BEN J. ; 1711 N. Dillon, Los Angeles 26, Calif., U.S.A.
- 1902 SWAN, J. A., F.Z.S. ; Hazel Mere, Rectory Lane, Sidcup, Kent.
- 1950 SWAN, Mrs. J. A. ; Hazel Mere, Rectory Lane, Sidcup Kent.
- 1951 SWANEPOEL, P. ; Howick Falls Hotel, Howick, Natal, South Africa.
- 1951 SWANN, A. W. ; "Compton House," Manor Road, Oadby, Leicester.
- 1931 SWEETNAM, Rev. Preb. J. E. ; The Rectory, Enborne, Newbury, Berks.
- 1948 SYKES, JOSEPH ; 167 North High Street, Musselburgh, Scotland.
-
- 1950 TAGER, I. ; P.O. Box 40, Parys, O.F.S., S. Africa.
- 1946 TANCRED, P. H. ; 19 Hardy Street, Ashfield, Sydney, N.S.W., Australia.
- 1946 TAYLOR, JAMES, M.B.O.U. ; Lower Hilcot, Withington, Cheltenham, Glos.
- 1944 TAYLOR, J. G. ; St. Anne's Park View, Toll Hill, Castleford, Yorks.
- 1949 TAYLOR, LAWRENCE N. ; Shadowhurst Farm, Glen Moore, Pa., U.S.A.
- 1945 TAYLOR, T. G., M.A. ; The Eyrie, Gravel Hill, Emmer Green, Reading.
- 1930 TEAGUE, P. W. ; Lybrook, Broadway, Worcestershire.
- 1926 TENNANT, Hon. STEPHEN ; Wilsford Manor, Salisbury.
- 1950 TENNEY, Mrs. EDNA ; Star Route, San Marcos Pass, Santa Barbara, Calif., U.S.A.

- 1946 TERRY, Miss MARGUERITE ; Lumeah, Boulivot, Grouville, Jersey, Channel Islands.
- 1949 THOMAS, A. E. ; Burnt House, Chigwell, Essex.
- 1931 THOMAS, F. E. ; Barnfield, Dunsfold, Surrey.
- 1949 THOMAS, RAY ; 1601 South Hope Street, Los Angeles 15, Calif., U.S.A.
- 1950 THOMPSON, G. E., F.Z.S. ; 84 Churchbury Lane, Enfield, Middx.
- 1950 THOMPSON, LLOYD B. ; 2010 Cliff Avenue, North Burnaby, Vancouver, B.C., Canada.
- 1946 *TINSLEY, PATRICK C. ; Hurn Hall, Holbeach, Spalding, Lincs.
- 1946 *TINSLEY, WILLIAM G. ; The Poplars, Holbeach, St. Marks, Lincs.
- 1950 TONG, E. H. ; Zoological Society of London, Whipsnade Park, Nr. Dunstable, Beds.
- 1950 TORRENS, ROBERT ; Bridge Street, Kilrea, Co. Derry, N. Ireland.
- 1951 TREVISICK, C. H., F.Z.S. ; Ilfracombe Zoo Park, North Devon.
- 1951 TRISE, H. R. ; 89 Dover Road, Copnor, Portsmouth.
- 1947 TUCKWELL, DAVID ; Asliesk, Alves by Forres, Morayshire.
- 1933 TUMA, F. L. ; Ola Hanssonsgatan 3, Malmö, Sweden.
- 1939 TUNESI, A. W. ; Elmside, 93 Vicarage Road, Sunbury-on-Thames, Middx.
- 1951 TURNER, E. L. ; c/o Rev. P. C. Turner, Route 2, Bassett, Virginia, U.S.A.
- 1928 TURNER, H. B. ; Malverleys, Nr. Newbury, Berks.
- 1930 *TURNER, WALTER H. ; 15 Sutherland Road, Chatwood, N.S.W., Australia.
- 1934 TYEBJEE, ABDE AMIRUDIN SHALEBHOY ; Malabar Court, Ridge Road, Malabar Hill, Bombay 6, India.
- 1951 TYEBJEE, SHALE D. S. ; Pabaney House, Cooperage Road, Bombay 1, India.
- 1946 UNDERWOOD, A. J. ; 24 Wellington Street, Kettering, Northants.
- 1947 VALLEN, J. H. J. M., M.D. ; Antoniuslaan 105, Blerick-Venlo, Holland.
- 1951 VAN APeldoorn, A. G. ; "Het Soerel," Heerde, Holland.
- 1949 VAN DEN BERGH, WALTER ; Société Royale de Zoologie d'Anvers, 26 Place Reine Astrid, Antwerp, Belgium.
- 1950 VAN DIJK, H. C. ; Stedekestraat 24, Tilburg, Holland.
- 1948 VAN DIJK, H. J. ; Korvelscheweg 97, Tilburg, Holland.
- 1950 VAN DIJK, N. ; Bisschop Aelenstraat 50, Tilburg, Holland.
- 1937 VANE, E. N. T., F.Z.S., M.B.O.U. ; Fairacre, Chiltern Road, Ballinger, Gt. Missenden, Bucks.
- 1934 VAN HEYST, A. F. C. A. ; Koningin, Wilhelminalaan 30, Amersfoort, Holland.
- 1950 VAN HEYST, H. J. ; "Amstelwyk," Wyk bij Duurstede, Holland.
- 1951 VAN LANTSCHOOT, C. ; Heldenlaan 88, Eeklo, Belgium.
- 1950 VAN LEEUWEN, J. DOCTERS ; Hoveniersweg 37, Tiel, Holland.
- 1950 VAN PUÿMBROUCK, L. ; 52 rue de l'Ancre, St. Nicolas-waes, Belgium.
- 1951 VAN VOLLENHOVEN, P. ; Burgem Knappertlaan 128, Schiedam, Holland.
- 1951 VAN WACHEM, R. H. ; Joh. Geradtsweg 44, Hilversum, Holland.
- 1949 VEALL, Miss P. J. ; 30 Cambourne Avenue, W. Ealing, W. 13.
- 1947 VEITCH, Capt. R. W., M.B.E., B.Sc. ; Redridge, Garforth, Nr. Leeds.
- 1926 VENNING, H. C. ; Hawksdown House, Walmer, Kent.
- 1950 VEVERS, R. G. ; Nightingales, Compton, Nr. Guildford, Surrey.
- 1928 VIERHELLER, GEORGE P. ; St. Louis Zoological Park, St. Louis 10, Mo., U.S.A.

- 1947 VINSON, MARK ; The Beeches Farm, Cowden, Edenbridge, Kent.
 1936 VOY, Miss HILDA ; Lynchets, Longbridge Deverill, Warminster, Wilts.
 1948 VUCOVICH, PAYSON ; Rte. 5, Box 846, Hanford, California, U.S.A.
- 1948 WADDAMS, W. LAWSON : 34 Thurlston Avenue, Sheldon, Birmingham 26.
 1947 WAIT, F. R., F.Z.S. ; Bridge House, Hemsby, Nr. Great Yarmouth, Norfolk.
 1948 WAKEFIELD, Mrs. C. H. ; 139 Senic Drive, Palomar Park, Redwood City, California, U.S.A.
- 1950 WALBRIN, A. F. ; School House, Croft Road, Hastings.
 1950 WALL, V. N. ; "Royal Oak," Marsh Lane, Erdington, Birmingham 23.
 1936 WALLER, H. ; Oldway, Pilgrims Way, Westhumble, Dorking, Surrey.
 1951 WALLIN, Mrs. O. H. ; 11543-36 N.E., Seattle 55, Washington, U.S.A.
 1951 WALMSLEY, J. H. ; 24 Willow Drive, Forest Hill, Port Elizabeth, South Africa.
- 1935 WARRE, Mrs. PHILIP ; Coppid Hall, Stifford, Essex.
 1932 WATKINS, T. R. HOLMES ; Oronsay, The Ellipse, Griffithstown, Mon.
 1950 WATKINSON, G. ; 27 Falkland Street, Birkenhead, Cheshire.
 1950 WATSON, J. K. ; Doonholm P.O. Box 757, Nairobi, Kenya Colony.
 1950 WATTS, R. A. ; 49 Midland Road, Wellingborough, Northants.
 1913 WAUD, Capt. L. REGINALD, F.Z.S., M.B.O.U. ; Bradley Court, Chieveley, Nr. Newbury, Berks.
- 1933 WEAVER, GEORGE, F.Z.S. ; 77 Offmore Road, Kidderminster, Worcs.
 1929 WEBB, P. B. ; Barney's Brae, Randalstown, Co. Antrim.
 1935 WEBBER, LEONARD C. ; 6 Grand View Parade, Epping, N.S.W., Australia.
 1937 *WEBER, ORLANDO F., Jr. ; 22 East 82nd Street, New York, U.S.A.
 1950 WEINMAN, Major A. N., M.B.E., C.M.Z.S. ; The Zoological Gardens of Ceylon, Allan Avenue, Dehiwela, Colombo, Ceylon.
- 1951 WELLS, O. N. ; Edenbank Farm, Sardis, B.C., Canada.
 1942 WENKE, FRANCIS L. ; 115 N. 20th Street, Olean, N.Y., U.S.A.
 1947 WEST, DAVID ; 209 N. 18th Street, Montebello, California, U.S.A.
 1932 WHARTON-TIGAR, Mrs. N., F.Z.S. ; The Highlands, Manston, Nr. Ramsgate.
- 1951 WHATLEY, E. C. ; Wonston Manor Cottages, Sutton Scotney, Nr. Winchester, Hants.
- 1950 WHEATLEY, Professor JOHN, A.R.A., R.W.S. ; Heathfield House, Windmill Road, Wimbledon Parkside, S.W. 19.
 1950 WHEATLEY, Mrs. GRACE, A.R.W.S. ; Heathfield House, Windmill Road, Wimbledon Parkside, S.W. 19.
- 1947 WHEELER, T. E. ; Lynwood, Onslow Avenue, Cheam, Surrey.
 1947 WHEELER, Mrs. T. E., F.Z.S. ; Lynwood, Onslow Avenue, Cheam, Surrey.
 1923 *WHITLEY, HERBERT, F.Z.S., M.B.O.U. ; Primley Hill, Paignton, S. Devon.
 1950 WHITMARSH, W. N. ; 28b John Street (rear), Porthcawl, Glam.
 1935 WHITMORE, G. E. ; 168 High Street, West Bromwich, Birmingham.
 1930 WILKINS, A. ; Rendcombe, Chesham, Bucks.
- 1947 WILKINS, Miss DORA ; The Manor House, Brize-Norton, Oxford.
 1950 WILKINS, E. E. ; 60 Brentford Road, Kings Heath, Birmingham 14.
 1949 WILLEMS, Prof. Dr. A. E. R. ; Montereystraat 24, Ghent, Belgium.
 1907 WILLFORD, HENRY ; Sans Souci, Havenstreet, Ryde, Isle of Wight.
 1951 WILLIAMS, Major H. C. ; "Bryn Deri," Penygarn, Pontypool, Mon.
 1948 WILLIAMS, H. P. ; 2 Burcote Road, Pye Hayes, Birmingham 24.
 1948 WILLIAMS, J. E. ; Green Gates, 207 Tile Cross Road, Marston Green, Birmingham.

- 1905 WILLIAMS, SIDNEY, F.Z.S. ; Sea Crest, Nyewood Lane South, Bognor Regis, Sussex.
- 1950 WILLIAMS, T. J. ; Cartref, Sylva Gardens North, Craig-y-Don, Llandudno, N. Wales.
- 1945 WILLIAMSON, T. F. M. ; R.R.I. Saanichton, Vancouver Island, B.C., Canada.
- 1951 WILLIS-FLEMING, Major D. ; 21 Torhill Road, Torquay.
- 1947 WILLMOTT, A. R. ; 12 Wahroonga Road, Murrumbidgee S.E. 9, Melbourne, Australia.
- 1951 WILLMOTT, J. D. ; Box 488, Mount Dora, Florida, U.S.A.
- 1948 WILLSHER, Mrs. G. A. ; 37 Springfield Road, Thornton Heath, Surrey.
- 1950 WILMOT, H., F.Z.S., M.R.I. ; 6 Polperro Mansions, Lyncroft Gardens, London, N.W. 6.
- 1939 WILSON, ALEX M. ; Middlemoor, Presteigne, Radnorshire.
- 1927 WILSON, ANDREW, F.Z.S. ; 233 Argyle Street, Glasgow, C. 2.
- 1948 *WILSON, CALVIN D., M.A. ; Tracy Aviary, Liberty Park, 589 East 13th South, Salt Lake City 4, Utah, U.S.A.
- 1950 WILSON, G. ; Gladstone House, High Street, St. Neots, Hunts.
- 1952 WILSON, T. ; 216 Blockhouse Bay Road, Avondale, S.W. 3, Auckland, New Zealand.
- 1950 WINCH, R. F. ; Queen Charlotte Fisheries, Ltd., 610 Bidwell Street, Vancouver, B.C., Canada.
- 1922 WINTER, DWIGHT ; Center and Negley Avenues, Pittsburgh 6, Pa., U.S.A.
- 1937 WITTING, R. C., F.R.G.S., F.Z.S., M.B.O.U. ; The Gables, West Horsley, Surrey.
- 1951 WITTING, Mrs. R. C. ; The Gables, West Horsley, Surrey.
- 1951 WOOD, Miss G. J. ; Church Cottage, Tarvin, Nr. Chester.
- 1945 WOOD, H. WALLACE ; Oak Hall, Hythe, Kent.
- 1940 WOOD, J. A. ; 68½ Pitt Street, Sydney, N.S.W., Australia.
- 1951 WOODWARD, D. ; 86 Stanstead Road, Hoddesdon, Herts.
- 1903 WORKMAN, WILLIAM H., F.Z.S., M.B.O.U. ; Lismore, Windsor Avenue, Belfast.
- 1945 WRAGG, H. B. ; 131 Berridge Road East, Sherwood Rise, Nottingham.
- 1950 WRIGHT, S. A., F.Z.S. ; 59 Ashridge Gardens, Palmers Green, N. 13.
- 1947 YAEGER, LEWIS ; P.O. Box 761, Tempe, Arizona, U.S.A.
- 1934 YEALLAND, JOHN ; The Zoological Society of London, Regent's Park, N.W. 8.
- 1932 YOUNGER, Mrs. L. ; 244 Cranmer Court, Sloane Avenue, S.W. 3.
- 1951 ZEORLIN, D. ; 413 E. 22nd Avenue, Spokane 10, Washington, U.S.A.
- 1947 ZIDEK, V. ; Praha 12, Benesovska 29, Czechoslovakia.

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- BLAKEY, H. P. ; Broadway, Newmarket, Auckland, S.E. 1, N.Z.
- COLLINS, Mrs. C. ; 341 South Road, New Plymouth, N.Z.
- DEAL, J. R. ; National Art Gallery and Dominion Museum, Department of Internal Affairs, Government Buildings, Wellington, N.Z.
- HIGGINS, A. ; 4 Fruit Vale Road, New Lynn, Auckland, S.W. 4, N.Z.
- HUTCHINSON, G. ROWLAND ; P.O. Box 770, Auckland, C.I., N.Z.
- IRVINE, Mrs. M. R. ; 21 King Street, Dannevirke, N.Z.
- MACLEAN, T. C. ; "Glenarvon" Farm, Ardmore, Takanini, Auckland, N.Z.
- MCNEILL, C. ; P.O. Box 267, New Plymouth, Taranaki, N.Z.
- MORAN, H. D. ; 78a Division Street, Riccarton, Christchurch, N.Z.
- PORT, W. J. ; 18 Chaytor Street, Palmerston North, N.Z.
- RANSTON, Dr. H. ; 34 Alexis Avenue, Mt. Albert, Auckland, S.W. 2, N.Z.
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- ROBINSON, J. W. ; 2 Neill Street, Green Island, Otago, N.Z.
- TAYLOR, F. G. ; Kairaki Beach, Canterbury, N.Z.
- TYRRELL, R. J. ; 270 Kaikorai Valley, Dunedin, W. 2, N.Z.

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- FECHNER, C. ; 29 Woodville Road, Woodville, South Australia.
- GEORGE, F. ; 17 Rosetta Street, Collinswood, South Australia.
- HAMILTON, Dr. Wm. ; Portrush Road, Marryatville, Adelaide, South Australia.
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- MANFIELD, H. ; c/o Zoological Gardens, Adelaide, South Australia.
- SEPPELT, OSCAR ; 57 Northumberland Street, Tusmore, Adelaide, South Australia.
- SEWELL, H. S. ; 14 Stannington Avenue, Toorak East, Adelaide, South Australia.

Rules of the Avicultural Society

Last amended, 8th March, 1950.

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its object shall be the study of Foreign and British Birds in freedom and in captivity. Poultry, Pigeons, and Canaries shall be outside the scope of the Society. The year of the Society, with that of each volume of the Society's Magazine, which shall be known as the AVICULTURAL MAGAZINE, shall commence with the month of January and end on the 31st December following.

2.—The Avicultural Society shall consist of Ordinary, Life, and Honorary Members, and the last shall be restricted in number to ten, and be elected by the Council.

3.—The Officers of the Society shall be elected, annually if necessary, by Members of the Council in the manner hereinafter provided, and shall consist of a President, one or more Vice-Presidents, a Secretary-Treasurer, an Assistant Secretary, an Editor, and a Council of fifteen Members. The President, Vice-Presidents, Secretary-Treasurer, Assistant Secretary, and Editor shall be *ex officio* Members of the Council.

4.—New Members shall be proposed in writing, and the name and address of every person thus proposed, with the name of the Member proposing him shall be published in the next issue of the Magazine. Unless the candidate shall within two weeks after the publication of his name in the Magazine, be objected to by at least two Members, he shall be deemed to be duly elected. If five Members shall lodge with the Secretary objections to any candidate he shall not be elected, but the signatures to the signed objections must be verified by the Scrutineer. If two or more Members shall object to any candidate the name of such candidate shall be brought before the Council at their next meeting, and the Council shall have power to elect or to disqualify him from election.

5.—Each Member shall pay an annual subscription of £1, to be due and payable in advance on the 1st of January in each year; and, on payment of the subscription shall be entitled to receive all the numbers of the Society's Magazine for the current year. Life Member's fee, £15.

6.—Members intending to resign their membership at the end of the current year of the Society are expected to give notice to the Secretary before the 1st of December, so that their names may not be included in the "List of Members", which shall be published annually in the January number of the Magazine.

7.—The Magazine of the Society shall be issued on or about the first day of every month, and forwarded, post free, *to all the Members who shall have paid their subscriptions for the year ; but no Magazine shall be sent or delivered to any Member until the annual subscription shall have reached the hands of the Secretary-Treasurer.* Members whose subscriptions shall not have been paid as above by the first day in November in any year shall cease to be Members of the Society, but may be readmitted, at the discretion of the Council, on payment of the annual subscription.

8.—The Secretary-Treasurer, Assistant Secretary, and Editor shall be elected for a term of five years, and, should a vacancy occur, it may be temporarily filled by the Executive Committee (see Rule 10). At the expiration of the term of five years in every case it shall be competent for the Council to nominate the same officer, or another Member, for a further term of five years, unless a second candidate be proposed by not less than twenty-five Members of at least two years' standing, as set forth below.

In the November number of the Magazine preceding the retirement from office of the Secretary-Treasurer, Assistant Secretary, and Editor, the Council shall publish the names of those members whom they have nominated to fill the vacancies thus created ; and these Members shall be deemed duly elected unless another candidate or candidates be proposed by not less than fifteen Members of at least two years' standing. Such proposal, duly seconded and containing the written consent of the nominee to serve, if elected, in the capacity for which he is proposed, must reach the Secretary on or before the 15th of November.

9.—The Members of the Council shall retire by rotation, three at the end of each year of the Society (unless a vacancy or vacancies shall occur otherwise) and three other Members of the Society shall be recommended by the Council to take the place of those retiring. The names of the three Members recommended shall be printed in the November number of the AVICULTURAL MAGAZINE. Should the Council's selection be objected to by fifteen or more Members, these shall have power to put forward three other candidates, whose names, together with the signatures of not less than fifteen Members proposing them, must reach the Secretary *by the 15th of November.* The names of the six candidates will then be printed on a voting paper and sent to each Member with the December number of the Magazine, and the result of the voting published in the January issue. Should no alternative candidates be put forward, in the manner and by the date above specified, the three candidates recommended by the Council shall be deemed to have been duly elected. In the event of an equality of votes the President shall have a casting vote.

If any Member of the Council does not attend a meeting for two years in succession the Council shall have power to elect another Member in his place.

10.—Immediately after the election of the Council that body shall proceed to elect three from its Members. These three, together with the Secretary-Treasurer, Assistant Secretary, and Editor, shall form a Committee known as the Executive Committee.

The duties of the Executive Committee shall be as follows :—

(i) In the event of the resignation of any of the Officers during the Society's year, to fill temporarily the vacancy until the end of the year. In the case of the office being one which is held for more than one year (e.g. Secretary-Treasurer, Assistant Secretary, or Editor) the appointment shall be confirmed by the Council at its next meeting.

(ii) To act for the Council in the decision of any other matter that may arise in connection with the business of the Society.

The decision of any matter by the Executive to be settled by a simple majority (three to form a quorum). In the event of a tie on any question, such question shall be forthwith submitted by letter to the Council for their decision.

The Executive shall not have power

- (i) To add to or alter the Rules ;
- (ii) To expel any Member ;
- (iii) To re-elect the Secretary-Treasurer, Assistant Secretary, or Editor for a second term of office.

It shall not be lawful for the Treasurer to pay any account exceeding £10 unless such account be duly sanctioned by another Member of the Executive.

It shall be lawful for the Secretary-Treasurer or Editor to pledge the Society's credit for a sum not exceeding £100.

Should a Member wish any matter to be brought before the Council direct such matter should be sent to the Secretary with a letter stating that it is to be brought before the Council at their next meeting, otherwise communications will in the first place be brought before the Executive.

A decision of a majority of the Council, or a majority of the Executive endorsed by the Council, shall be final and conclusive in all matters.

11.—The Editor shall have an absolute discretion as to what matter shall be published in the Magazine (subject to the control of the Executive Committee). The Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

12.—The Council (but not a committee of the Council) shall have power to alter and add to the Rules, from time to time, in any manner they may think fit. Five to form a quorum at any meeting of the Council.

13.—The Council shall have power to expel any Member from the Society at any time without assigning any reason.

The Society's Medal

RULES

The Medal may be awarded at the discretion of the Committee to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Northern Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of hatching of the young, and furnish such evidence of the facts as the Executive Committee may require. The Medal will be awarded only in cases where the young shall live to be old enough to feed themselves, and to be wholly independent of their parents. No Medal can be given for the breeding of hybrids, or of local races or sub-species of species that have already been bred.

The account of the breeding must be reasonably full so as to afford instruction to our Members, and must appear in the AVICULTURAL MAGAZINE before it is published or notified elsewhere. It should describe the plumage of the young, and *be of value as a permanent record of the nesting and general habits of the species*. These points will have great weight when the question of awarding the Medal is under consideration.

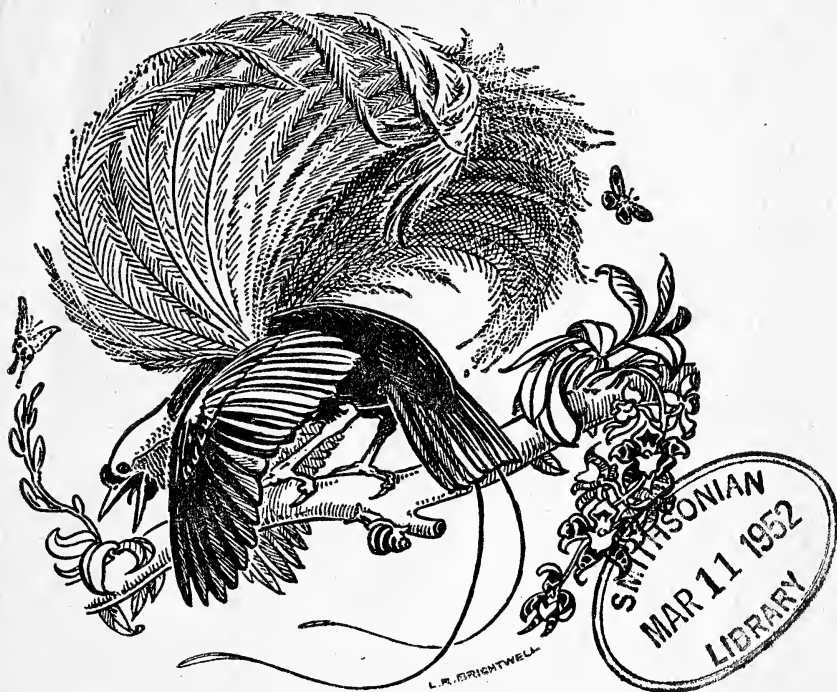
In every case the decision of the Committee shall be final.

The Medal will be forwarded to each Member as soon after it shall have been awarded as possible.

The Medal is struck in bronze (but the Committee reserve the right to issue it in *silver* in very special cases) and measures $2\frac{1}{2}$ inches in diameter. It bears on the obverse a representation of two birds with a nest containing eggs, and the words "The Avicultural Society—founded 1894". On the reverse is the following inscription: "Awarded to [*name of recipient*] for rearing the young of [*name of species*], a species not previously bred in captivity in the United Kingdom."

The Council may grant a special medal to any member who shall succeed in breeding any species of bird that has not previously been bred in captivity in Europe.

AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

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**Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
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Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

Secretary-Treasurer : Mrs. Milton Erlanger, Suite 500, Empire State Building, New York, N.Y.

The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London, W. 9. Telephone : Cunningham 3006.

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FEB 29 1952



BLUE-SHOULDERED ROBIN CHAT.

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THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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JANUARY-FEBRUARY, 1952

THE BLUE-SHOULDERED ROBIN-CHAT

(*Cossypha cyanocampter*)

By C. S. WEBB (London, England)

Few birds are more interesting from the aviculturist's point of view than the African Robin-Chats of the genus *Cossypha*. They are all sprightly and elegant with pleasing colours and some, if not all, have delightful call-notes. It has always given me great pleasure to study these birds in their natural surroundings, learning something of their habits, and to introduce new species to this country. They are not easy to locate owing to their skulking habits, but once their haunts are known they are not very difficult to trap.

During many years of collecting in the parts of Africa indicated, I have captured and introduced into England the following species :—

Noisy Robin-Chat (*Cossypha dichroa*). Natal.

White-browed Robin-Chat (*C. heuglini*). Kenya, Portuguese East Africa.

Black-tailed Robin-Chat (*C. semirufa*). Kenya Highlands.

Blue-shouldered Robin-Chat (*C. cyanocampter*). Gold Coast, British and French Cameroons.

White-crowned Robin-Chat (*C. albicapilla*). Gold Coast.

Snowy-headed Robin-Chat (*C. niveicapilla*). Gold Coast and French Cameroons.

Cape Robin-Chat (*C. caffra*). Transvaal and Kenya.

This interesting list is limited to the *Cossyphas*, but there are, of course, in Africa a number of Robin-Chats belonging to other genera and numerous species of Robin-like birds going under the popular names of Scrub Robins, Bush Robins, and Forest Robins.

The Noisy Robin-Chat and the Blue-shouldered Robin-Chat are perhaps the most attractive of all *Cossyphas* on account of their quite remarkable powers of mimicry, particularly of other birds' songs and call notes. The beauty of the Blue-shouldered species is well illustrated in the accompanying plate, in which the artist has succeeded in capturing the whole character of the bird. It illustrates one of several specimens captured in the British Cameroons in 1947. This

species is the shyest of the family, in fact one might live for a long time quite close to its haunts without suspecting its presence, assuming one had not learnt its call-notes.

My first introduction to this species was during an expedition to the French Cameroons in 1936, an account of which appeared in the *AVICULTURAL MAGAZINE*, January, 1937. In this I described the impenetrable second growth thickets in which the Blue-shouldered Robin-Chat spends its entire life, rarely showing itself in open places. My recent specimens were captured in dense thickets bordering the Cross River near Mamfe in the British Cameroons. Pairs of these birds live within narrow territorial limits, and although extremely difficult to observe, they can be easily located once their call-notes are recognized. If one hears a variety of sweet notes issuing from a thicket near the ground it can be taken for granted that this is the home of a pair of Blue-shouldered Robin-Chats and that they will always be near at hand. It is rather staggering before one knows something of these birds and their powers of mimicry, to hear the curious and distinctive call-notes of the Green Fruit-Pigeon coming from such a situation. I found little difficulty in capturing these Robin-Chats in flew-nets, except that a great deal of discomfort was involved. A convenient gap had to be cut through a dense mass of vegetation so that small hanging nets could be set. In such sombre situations these are invisible. It is difficult to imagine a more miserable situation in the rainy season, with the foliage wet and dripping, the place in semi-darkness, and mosquitoes galore. As I had to travel some distance by canoe to reach the spot, I never had time to watch results, but visited the place several times daily, making the final visit just before dark to avoid having a bird left in the net all night. The difficulty of extracting an entangled bird from a flew-net in almost total darkness while lying on one's back in sodden vegetation and being eaten alive by mosquitoes cannot be overstated. On more than one occasion I found myself being attacked by marching ants while doing this. My last recollection of the Blue-shouldered Robin-Chat in the wild state was when I finally took up my nets and paddled down the swollen Cross River as nightfall approached. In a dense thicket, in spite of the rain, a male was pouring out his sweet song and mimicking the calls of his fellow-creatures, long since quietened by the darkness and the rain. His challenge, which could be clearly heard above the roar of the flood-waters, was surely an indication to the outside world that he was a happy king in his own castle, even if it did appear to be a gloomy one.

The distribution of the Blue-shouldered Robin-Chat is from Liberia and Gaboon east to Uganda.

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BREEDING RESULTS OF ALBINO BIRDS

By PRADYUMAN K. DESAI (Bhavnagar, India)

Every now and then an aviculturist is the proud possessor of an albino specimen in his collection, but very few are able to breed them true to colour.

Albino birds are white, with a beautiful wash of pink, with red eyes, and bill and feet are also pink or flesh-coloured. Some have normal coloured eyes and feet, and these I call whites.

I have seen real albino common Red-vented Bulbuls (*Molpastes cafer*). A true albino pair bred normal coloured young ones, because nature will not allow albinos to breed albino specimens.

His Highness the Maharaja Sahib of Bhavnagar brought a beautiful specimen of albino Red-vented Bulbul from Calcutta for his private collection. It was a very big and bold-looking bird. I had a thought to breed with him, but there was no albino female to mate with him. Fortunately a light-coloured female was in the collection, which was kept with a normal coloured male bird ; the pair was breeding normal coloured progeny. She was separated and put with the albino male, in the hope of getting albino birds. The albino male quickly took to her, and when the breeding season commenced both busily selected the building materials, made a nest in an artificial bush nailed on one of the walls of the aviary, and were able to raise three normal coloured young ones. I was very hopeful of getting from the pair a real albino young one like its male parent. The survivors turned out to be large and bonny specimens.

One day a bird dealer arrived with a few birds, and with them he brought a white female Bulbul. She was purchased as a mate for the albino male. She was not as large nor red-eyed ; her eyes and feet were of normal colour. The most satisfactory point was her white plumage.

The original light-coloured female was transferred to one of the young males, in order to interbreed and to see the result of the mating ; but to my despair they also bred normal young ones.

After a year or so my albino male and white female selected a bush outside in the run and built a nest, laid two eggs, and began incubating them. On the morning of the tenth day, when a man went to clean the floor of the aviary, he brought an empty egg shell which he found lying on the ground. I saw the shell and decided that there must be a young one hatched out. Next day the other shell was found lying on the floor.

To supply the natural food for feeding the young ones I used live insects like grasshoppers, crickets, etc., and in addition white ants were also given.

Both the parents were so bold and tame that they used to come to the hand to take live food even before they had young ones. The love for their progeny made them absolutely fearless. They were snatching food before I could offer it to them, and in trying to secure a plump grasshopper they got so annoyed that they pecked at my hand.

On the fifth day, to my surprise, the man came with a dead young one, which he found lying on the floor. To find out whether they had been bred true to the colour I examined the dead young one, and from the growing pinions, the white ends, and pink roots saw that it should have turned out white in colour. To have a look in the eyes, I forced them open, and found the pupils pink. Though of no avail, it was decided that it had bred true albino. The next day the second of the brood met the same fate. I saw it was also white, but did not examine the eyes.

That year I was not lucky in getting any more broods. The next year I was fortunate to see two young ones of pure white colour. At the same time, it was very strange that the young one which turned out a male bird was the replica of his father, and the other was like her mother, with exactly the same coloured bill and feet. Both the young ones survived to maturity.

Despite a change of aviary with birds of a different kind and size, they managed to build a nest and laid eggs. Unfortunately a Jungle Babbler (*Turdoides t. terricolor*) got at her and pecked her to death. That sad incident put an end to any possibility of success.

If these aviary-bred albino Bulbuls try again it will be a very rare occurrence in aviculture.

After producing a pair of albino Bulbuls the original white female passed away. A pied hen bird was introduced to the albino male. They produced all normal coloured young ones.

To inbreed I had to keep a young female with the albino male, which was the offspring of the light coloured and albino male. I could see if they bred I would get at least one young one pure white. But the result was negative.

The collection of albino birds was made richer by adding a pair of white common Partridges (*Francolinus pondicerianus* (Gmelin)); of this pair the male did not survive to breed. A coffee-coloured male was then mated with the white female Partridge, whose eyes and feet were of normal colour. This pair raised nearly twenty young ones, but all of normal colour.

To get some white progeny, two pairs of young Partridges were selected and kept separately. They bred after two years. Both pairs hatched out two white chicks each time from a clutch of five eggs.

By this breeding, there were five white Partridges with only one female. This pair did not survive to maturity.

The other males were given normal coloured females caught from

the wilds. These pairs bred normal coloured progeny. Out of which I selected three females to mate with those three white males. I am eager to see the result this year.

A white Pagoda Myna (*Temenuchus pagodarum*) bred normal young ones with normal coloured female.

A female coffee-coloured Pied Myna (*Sturnopastor contra*) was mated to an Andaman Myna (*Sturnia andamanensis*). The hybrid turned out grey-coloured, which did not breed. I suppose they were sterile. There was one very noticeable feature about their beaks, which were rather long like their mother, and colour was like their father.

Generally the inbreeding produces 50 per cent results, but the normal coloured Partridges bred from white parents produced 40 per cent results. The albino Bulbuls bred true to their sexes, which, I suppose, is a strange occurrence.

I have tried to explain my results, which may prove of some interest aviculturists.

* * *

"AVIFAUNA"

By L. S. CRANDALL and J. DELACOUR (New York, U.S.A.)

It is gratifying to notice, particularly in Europe, a great increase of the general interest in birds, not only in wild birds and their conservation, which is apparent everywhere, but also in captive birds, when they are comfortably and artistically housed. To-day, bird collections in the European zoos are often excellent, and much better exhibited than they used to be in the past. If large, private collections are fewer and less extensive than before, because of the less favourable financial position of most of the amateurs, those open to visitors are very prosperous, and new bird parks have been started in numerous places. Only last summer, within a week, one of us was approached by representatives of two big French cities, Nice in the south and Lille in the north, and asked to undertake the planning, building, and stocking of elaborate aviaries and enclosures in their public parks.

During the last few years, large exhibits of birds have been built, particularly in Holland, either separately or as part of more general zoos. As a bird park, far the biggest and richest of all is "Avifauna" at Alphen-on-the-Rhine, close to Leyden. A visit to this unique establishment is well worth while. It was opened in 1949; Mr. Gerard Van den Brink, a self-made, prosperous local business man, had taken a sudden fancy to birds two years before, when he saw a few Pheasants in a friend's garden, and he soon acquired a number. Because of the interest that people took in his private collection, he quickly decided to build a public bird park, the equal of which had not been seen before. With the help of Mr. J. Noordzij,

who had been a Curator of Birds at the Rotterdam Zoo, he succeeded within a year in creating an astonishing establishment. There is no doubt that "Avifauna", at the time of our visits (May-June, 1951), was a highly unusual display of a very large and interesting collection. All groups of birds were represented, many rare ones, and lots of them. Certainly the larger zoos and the great private collections of the pre-war days were richer, but to-day "Avifauna" reaches a high standard.

The Park is small at present (eight acres), and rather bare. It was an open field three years ago, and the trees and shrubs have hardly started growing, but they represent an excellent selection of rare and pretty species and, given time, will be wonderful. The Park is now being greatly enlarged, and there seems to be unlimited open space at the back for further improvements. The main gate and all the accommodation is substantially and carefully built. The grounds have been planned on formal lines; there are long, straight walks lined with poplars, and canals on both sides and at the back. The innumerable pens and aviaries are excellently made of steel framing and small wire netting; they are planted with beautiful and costly shrubs, and have fine lawns and fountains. The only objection is the fussiness of the landscape and the doubtful taste of some of the shelters, which look like miniature castles and towers. But most of these aviaries are very good. They are arranged in rows and clusters at different spots. There are also numerous enclosures for Ostriches, Rheas, and other large birds, and for Storks, Cranes, and various waders, many ponds and pens for waterfowl, Penguins, Flamingoes—in a word, an array of all sorts of accommodation.

The aviaries are stocked with a large number of Pheasants, Quail, and other game birds, small waders, Parrots, Doves, and hundreds of small birds. They certainly look extremely attractive, but practical aviculturists here have to make reservations. The Parrots were happily cutting the leaves and chewing the twigs of the valuable shrubs; many delicate species had no, or insufficient, shelter against bad weather; newly arrived American Quail such as Gambel's, Montezuma's, Mountain and Scaly, all denizens of the desert, and therefore intolerant of dampness, were almost disappearing in the lush, moist green grass, and had no shelter against the rain; with valuable Pheasants had been placed pairs of exotic Jays or Magpies, so that the chance of ever finding an egg laid is remote. It seems that sound principles of practical bird keeping have been systematically disregarded, and ethical values forgotten, at "Avifauna". Mortality under such conditions must be terrific, and no doubt the collection has to be constantly replenished with newly acquired specimens. The waste of plants must be equally great. Ostriches, Emus, and Rheas, for example, were busy swallowing pretty alpine and herbaceous plants—not to speak of the Parrots' devastations.

The indoor accommodation has also been queerly planned. There is a large, rectangular house with good-sized cages all round, that visitors look at through plate glass windows as they walk under a covered passage. The cages are roomy and they were beautifully planted with tropical flowers and shrubs, each being devoted to a very few chosen birds, such as Grassfinches, Tanagers, and Sugarbirds. Unfortunately, the roof of the cages is solid, and no natural top light reaches the plants, which consequently cannot thrive, and must be replaced every few weeks; electric light is sufficient for birds to live, but not for plants. New plants never look so nice as established ones, not to mention the expense.

Another indoor arrangement is still less satisfactory. Following a new and, we think rather unnecessary, fashion lately in favour in some European zoos, a long, dark corridor has been built with, on one side, a series of brilliantly lit compartments without glass or wire netting separating them from the public. The theory is that the birds will not leave their brightly illuminated cages for the dark spaces of the public gallery. In fact they do, and we watched a number of Waxbills and Weavers happily flying out and returning to other compartments. Unless very tame, quiet, sluggish birds are used, such cages are unworkable. They have another disadvantage; they should be at a considerable distance from the public, as otherwise hands would reach out and disturb the birds. At present the cages with a glass front usually adopted in American zoos seem more satisfactory as the birds remain absolutely safe, and the glass is entirely invisible when the lighting is adequately arranged. The only difficulty is the cleaning of the glass fronts, which is easily overcome by a suitable device to make them readily movable.

The above reservations have mostly to deal with the practical side of the accommodation. As a bird show, and account being taken of the fact that it is primarily a show, "Avifauna" is a great success. A few minor alterations would leave it just as spectacular, and at the same time would provide the birds with much more favourable living conditions.

A very large, luxurious restaurant, with band and floor shows, stands at the back of the Park, surrounded by ponds full of Flamingoes, Pelicans, Storks, and other waterbirds. The grounds are beautifully illuminated at night, a very great element in the success of the Park, if not in the quietness of the birds. It is certainly not easy to reconcile the necessities of a popular show with those of satisfactory bird keeping. If, however, a few changes were made, "Avifauna" could boast of having succeeded in solving a difficult but worthwhile problem.

COMPARATIVE STUDIES ON THE BEHAVIOUR OF ANATINÆ

By Dr. KONRAD LORENZ (Dulmen in Westfalen, Germany)

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Translated by Dr. C. H. D. Clarke, Division of Fish and Wildlife, Ontario, Canada

(Continued from Volume 57, Page 182)

V. THE SPOT-BILLED DUCK

Anas pæcilorhyncha pæcilorhyncha Foster and *A. p. zonorhyncha* Swinhoe

One can only say about these species that they agree completely with the Mallard in their actions and notes. The only difference that I could find was in the placing of the head feathers in the behaviour described above. The distinctive "set" is present, but much less pronounced than in the Mallard. Mallards, Spot-billed Ducks, and Meller Ducks consider themselves so much one that the drakes will fight together as they do with others of their own species. The species mate with each other just as freely as with their own kind. Only in the dominance reaction is there a noteworthy individual reaction for the separate species. Spot-billed and Meller's Duck females are rarely pursued by Mallards and the drakes of the first two named species never manifest any dominance-desire toward a female Mallard. However they are just as willing to mate with them as with females of their own species.

VI. MELLER'S DUCK

Anas melleri Sclater

Although the Spot-billed drake, while he lacks a special, showy male plumage, is clearly differentiated from his mate by the colour of his feathers and his bill, the drake Meller's Duck is exactly like the female. The plumage has the typical lengthwise shaft spotting of the females of *Anas*, without a trace of the tendency to transverse marking in evidence in both the Spot-billed drake and the drake of the Black Duck (*Anas rubripes*), reminiscent of the eclipse plumage of the Mallard drake. In his make-up the Meller drake differs from the Mallard and the Spot-billed drakes in his extraordinary fondness for fighting and in the parallel and accompanying tendency for "raebraeb" palavers. The drakes defend their mates more vigorously against strange drakes than do the Mallards, and they fight each other oftener in the wooing of their mates. The female Meller Ducks, on their part, it is very

interesting to note, are especially prone to play up to drakes of other species. There was one large hybrid between Mallard and Muscovy that enjoyed the pleasures of love constantly—and therefore had the pleasure of being most intensively incited by a whole procession of different female Meller Ducks. This transferability is without doubt connected with the lack of a distinctive showy male plumage. On the other hand what the Meller drakes lack in fine feathers they make up for in their extraordinary bravery in fighting. In rivalry between a Mallard and a Meller Duck the latter regularly carries off the bride. Even the Meller drake whose “lawful” mate had fallen in love with the Muscovy-Mallard hybrid finally came off as victor because of the stubbornness of his attacks, although his rival was twice as heavy and not at all cowardly. This great pleasure in fighting and especially the tendency to vigorously defend his mate made me suspect that I should find the male taking care of the young, which was also predicated by the lack of any sex-dimorphism. However, this expectation has not yet been verified. In the few (3) cases when, for the sake of this problem, I let the Meller Ducks lead their broods freely, the drake took as little interest in the ducklings as a Mallard drake.

Both the female and male sexual and non-sexual reactions and calls differ so little from those of the Mallard that it will suffice merely to mention the differences. The female’s “enticing” sounds high and thin and can be immediately and certainly distinguished from that of the Mallard and the Spot-billed Duck, which sound quite alike. The decrescendo-call is also harsher and thinner. One could say that both sound as though they came from a smaller duck. In the drakes the most striking difference in comparison with the Mallard and Spot-billed Ducks is that it says, instead of the two-syllabled “raebraeb” of the conversation note and the palaver, a three-syllabled “raebraebraeb” which can, under great excitement, become even a four-syllabled note. I did not notice this by ear at first, but through seeing it, because the lower mandible of palavering Meller drakes was moving remarkably quickly. In the social-play of the Meller drake all the usual behaviour sequences of the Mallard drake are found, *with the addition of nod-swimming which, in the social-play of Mallards and Spot-bills, occurs only as a separate behaviour form of the females.* In the way in which it is done, also, this nod-swimming of the Meller drake corresponds throughout to that of the *Anas* females, in that it is not, as in the nod-swimming of Mallard drakes, where it forms part of the head-up-tail-up, the sequel to a long introduction and a prelude to many other actions, but is entirely like that of the female a prelude and challenge, so to speak, to courtship, without any preliminary shaking, drinking, or mock-preening. It is probably no mere chance that the only swimming drake with truly female coloured plumage also possesses this feminine courtship behaviour.

VII. THE PINTAIL

Dafila acuta L.

A. GENERAL.

The general structure of gatherings of courting Pintails and the significance of the detailed actions to be described, differ from that of the ducks previously described in that the drakes do not begin their social play independently of the presence of the female and do not ignore these, so to speak, uninvited onlookers. Instead, the drakes display directly in front of the females, forcing their courtship upon them, a thing that the Mallard drake never does. A Mallard drake never swims up to a female, or even after her, in order to perform his courtship before her eyes, whereas the Pintail does do this. A little company of drakes may begin to display independently of the presence of a female, but as soon as she appears on the scene the drakes begin to press around her. Having arrived near her, they "have to" go through the introductory shaking of the bill a couple of times before they can bring out a grunt-whistle or perform the head-up-tail-up. Throughout this procedure one always has the impression that, just like Mallards, the Pintail drakes, after a long "pompous" introduction, really "want" to display in the public square, but that they are forced by the restlessness of the females to change the scene of their display again and again. However, I am not quite sure that under normal conditions Pintail ducks do not take more interest in the display of the drakes than was the case on my pond, and thus stay at the spot more quietly.¹ As my Mallards were much better breeders than my Pintails, that would be quite possible. Anyway, it can be said that Mallard drakes never interrupt their social play because of the females' lack of interest, nor do they change its place nearer the female.

B. THE NON-SEXUAL REACTIONS AND CALLS.

The conversation calls and call-notes of little ducklings, with their corresponding body positions, are like those of the Mallard. But before they can fly, at the same time that the voice changes, the drake loses the two-syllabled conversation note. His voice changes into a thin peculiar sound, reminding one of the notes of some song birds, a fine nasal "geeeee". It is one-syllabled and drawn out when it corresponds in significance to the Mallard's two-syllabled "raebraeb" as, for example, when driving tame ducks, and the Mallard drakes, very annoyed, utter their fastest "raebraeb" and the females of both kinds their "quegeg-quegeg". As in the Mallard, a one-syllabled

¹ This assumption proved absolutely correct. The Pintail courtships I observed in Slimbridge, where these ducks breed freely, were much more stationary than in Altenberg.

drawn-out call combines the function of a call-note and a warning call. The reactions in the Pintail expressive of the intention of flying up and going away, are similar throughout to those of the Mallard, only the voice is considerably deeper and hoarser, and uncommonly rich in rolling "r" sounds.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE

1. *Inciting*.

Inciting by the Pintail does not differ in significance or in mode of application from that of the Mallard. Although it is certainly homologous to that of the Mallard, it differs considerably in behaviour form and note from that of *Anas*. In female hybrids of various blood combinations it appears in all possible transitions between the original forms. When inciting the Pintail raises the fore parts very high, and if on land stands with the fore parts erect (Fig. 18) and then moves its head backwards much more closely pressed against the body. The movement of the bill, pointed originally toward an enemy, and quite distinct in the Mallard, is hardly noticeable in the Pintail, the whole behaviour pattern being more "ritualized" and even farther away from the primitive form, found among the *Casarcinæ*, than in the Mallard. The depression of the bill in the head-articulation is much less noticeable than in the Mallard. One rarely hears the single "queg" sounds any more. They follow each other much faster than in *Anas* and run together in an almost continuous "arrrrrrrrr" according to the mood of the Pintail. However, the peculiar querulous scolding undulating intonation is heard just as in "*Anas*".



FIG. 18.—The inciting of the Pintail. Notice the height of the front of the body. Burp of the drake Pintail. In such an extreme erection as seen in the illustration a whistle regularly follows.

2. *The Gestures of Repulsion*.

In the Pintail these are more intense and more easily released than in the Mallard. Even when one drives tame ducks rather roughly the upper mandible of the female is raised and the feathers on the front of the head are ruffled. The cackling sounds are like those of the female *Anas*, but harsher and deeper. When brooding, a Pintail falls into "hysterical" outbursts of gestures-of-repulsion, even though a drake may not be anywhere near her, and through this the attention of the keeper is often drawn to the fact that there is a nest with eggs. The drakes, like those of *Anas*, that chase ducks in order to rape them, leave such brooding ducks strictly alone.

3. *The Decrescendo Call.*

This is heard less often than in the Mallard, mostly in the deep dusk of evening when the flight impulse is greatest. It consists of an uncommonly loud and deep two-syllabled "quahrr-quack", but it is impossible to say whether there are two slowly uttered "queg" sounds, or many sounds uttered very fast. The lowering of the voice and the tone within each syllable correspond entirely to those of *Anas*.

4. *The Prelude to Mating.*

This corresponds throughout to that of the Mallard, except that it seems to me that in the Pintail it is the drake rather than the female that takes the initiative. However, this may be due to the weakening of the reproductive instinct on the part of my Pintails as a result of being in captivity. The female is usually attacked by this malady more acutely than the male.

D. THE SEXUAL REACTIONS AND CALLS OF THE DRAKE.

1. *Mock-Preening.*

Is quite like that of the Mallard, either with or without the "drinking". In Pintails, both in *acuta* and *spinicauda*, the colours of the "specula" on the secondaries differ according to sex, those of the males being very brightly coloured. The function of the "eye" as a flight signal, as suggested by Heinroth seems to be less important in these ducks than its function as a mark of sex. Like Mallards, the female Pintail practically always flies in front of the drake, although she has no bright specula on her wings. It

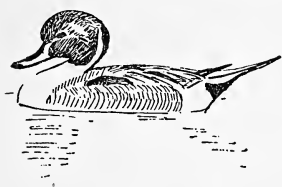


FIG. 19.—The position at the beginning of the drake Pintail's social-play. Compare also Fig. 9.

is surely not mere chance that the mock-preening of the wing plays the greatest role in those species of ducks where sex-dimorphism of the wing is greatest, such as *Aix*, *Lampronessa*, *Chaulelasmus*, and *Mareca*.

2. *"Drinking."*

Is in every respect like that of the Mallard.

3. *The Introductory Shaking.*

The position of the body and the shaking of the head which precede actual display make Pintails look very long and elegant. The thickly ruffled head, drawn in short, is an effective contrast to the stretched-out body and the lance-like tail held almost horizontally (Fig. 19). The shaking is generally repeated less often and for a shorter period of time than is the case with the Mallard. Instead of this, a special behaviour takes place between the introductory acts and the more highly differentiated display.

4. *Burping.*

While the head feathers are taking on the disk-like "set", described above for the Mallard drake, the head is thrust upwards and backwards, the bill being held horizontally or slightly downwards. The backward movement is not fast, like the down-up act of the Mallard, but slow and measured. At the same time the one-syllable conversation note is uttered in a rising key, sounding like a question, and the next moment, while once more burping out a second conversation note, now in a falling key, the head is moved downwards again.

The symbol $geee^{ce}geee_e$ expresses quite well both the head move-

ment and the call, with the ending of the burping behaviour likewise, to use a little poetic licence, well represented. In contrast to the display of the Mallard drake, which is linked with whistling, the burping of the Pintail drake is not bound by an "all-or-nothing" law but it appears to vary according to

intensity both as regards the compass of the head movement and of the accompanying sound scale. Moreover, the reaction-specific stored-up energy is not reduced by a single burp to anything like the degree that it is by the performance of the grunt-whistle. Indeed, even with a lesser intensity, it is certainly more analogous, as a self-stimulus, to the introductory shaking. With a greater intensity the burp is enriched by a soft flute-like whistle that sounds like "pfüh". This whistle occurs exactly at the culminating

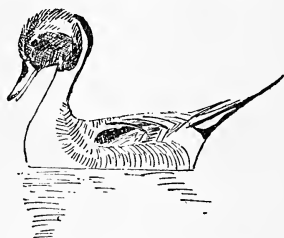


FIG. 20.—The burp of the drake Pintail, less extreme than in Fig. 18. In such cases only with call without whistle. Compare Figs. 24, 39, 46, and 50.

point of the head-and-call movement, like all bone-drum whistles of swimming drakes, and also at the same point of time in corresponding behaviour, i.e. when the wind-pipe is at the highest tension. During the whistle the uttering of the conversation note is not interrupted. The whole tone-picture can be represented by

pfüh
 $geee^{ce}geee_e$

Doubtless the ascending note of the "geee" is caused mechanically by the pressing up of the head and the resulting tightening of the trachea, so that one can tell fairly accurately both from the head movement and the ascending note at what point the whistle will come or whether the behaviour will die down without having reached the whistling level (Fig. 20).

The only behaviour of the Mallard drake which is probably directly homologous to the burp is that peculiar stretching-up of the head while turning it to the female and uttering a drawn out "raeab" which we have seen in the second phase of the head-up-tail-up (see p. 177). In the Gadwall drake there is a form of behaviour with a thrusting up of the head and a soft uttering of a call note, almost voiceless in this species, which sounds more like that of the Pintail drake but is, however, at the same time certainly homologous to that of species of *Anas*. A burp, certainly homologous, is found in *Dafila spinicauda*, exactly like that of *D. acuta*, and in *Virago castanea*, *Nettion crecca* and *N. flavirostre*. In the marbled Teal (*Anas angustirostris*) the burp is—most surprisingly—coupled with the "bridling" movement. Without the whistle, but with a very similar sound, it is found in

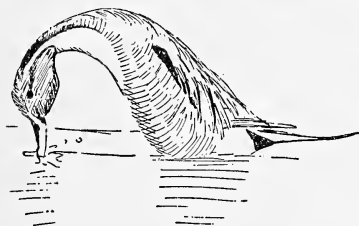


FIG. 21.—The grunt-whistle of the Pintail drake. Compare Figs. 11*b* and 38.

Pacilonetta bahamensis and *P. erythrorhyncha*, in which the burp of the last-named exhibits a clear transition to the Teal group and in another respect to the Shovelers. However, *Aix* and *Lampronessa* also have corresponding head movements, although with quite different sounds. I consider the burp, from the point of view of its origin, to be a mimic-exaggeration of the head-stretching in uttering the call note. In support of this we have, first, the questionably intermediate position of the head-stretching which is part of the head-up-tail-up in *Anas* and, second, the circumstance that an unmistakable burp is connected with the head-up-tail-up in the Pintail drake (q.v.). Thirdly, the burp functionally replaces the call-note in the Pintails, the Teals, and Garganeys and can therefore be used independently of display, without introductory shaking, analogous throughout to the long drawn-out "raeab" of the Mallard, and in situations where this is a characteristic note. One sees and hears the burp if a drake has lost his mate, when a female flies above him, when a female utters its decrescendo-call at some distance, but above all, like a Mallard "raeab", in the significance of a warning note. The burp behaviour of *Aix* and *Lampronessa* are surely homologous to the "raeab" but have probably been differentiated from the call note independently of the burp of the *Dafila-Virago*-Teal group.

5. The Grunt-Whistle.

In the Pintail this is exactly like that of the Mallard, the bill skimming along the surface of the water, and the whistle following at the moment of the greatest tension of the windpipe. However, the

grunt sound that is so characteristic of the species of *Anas* is lacking and the whistle itself is less sharp and has more of a "u" sound (Fig. 21).

6. *Head-up-tail-up*.

With the Pintail this behaviour is rather different from that of *Anas*. Above all the elbows lie flat on the back and the rump feathers are not lifted. On the other hand, the movements of the head, rump, and tail are exactly like those of the Mallard drake, including the linkage of a lifting of the head with the turning of the bill toward the female (Fig. 22). The subsequent head-jerking and nod-swimming

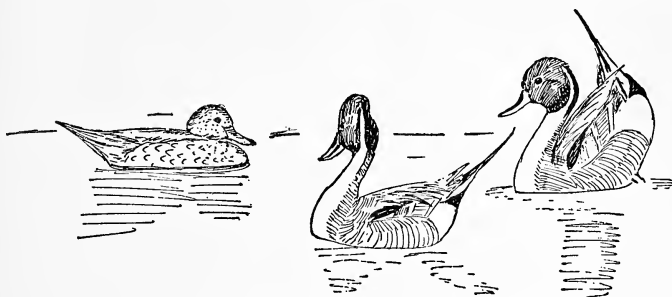


FIG. 22.—The drake Pintail's head-up-tail-up with ensuing turning-of-the-head to the female (left). Compare with Figs. 12 and 13.

are entirely lacking in *D. acuta*. Of all other *Anatinæ* the head-up-tail-up of the Bahama duck is closest to the Pintail. It is lacking in *D. spinicauda*.

7. *The Turning of the Back of the Head*.

This orientation-reaction doubtless plays a special role in the display of *D. acuta* as its effect is heightened by a special differentiation of the feathers, namely the black plush cushion on the back of the head already mentioned. The behaviour differs fundamentally from that of the Mallard, which is only partially homologous, in that it is not connected with a lifting of the chin. This lifting of the chin and the down-up movement, which is perhaps only a mimic-exaggeration of the chin-lifting, is lacking in *Defila*, as well as the two-syllabled conversation-note that accompanies it in the Mallard drake. In all the biological situations in which the Mallard drake says his "raebraeb" the courting Pintail drake "uses" the burp with *geeegeee*, with and without the whistle, just as it takes the place

with him of the long drawn out "raeab" used as a call-note or warning call. Thus *Dafila*, instead of the two distinctive reactions of *Anas*, has only one, which, to judge from comparative data, must be considered as only secondary. Thus, even when the Pintail is alone with the female, he woos constantly with the burp instead of with chin-lifting, and the orientation-reaction released in this situation, that of turning the beautifully coloured back of the head to the female, comes mostly in the position of a finale to the burp, or—quite often—immediately after the sound has died away. The pointing of the bill to the female occurs, as we have noticed, after the burp following the head-up-tail-up. When the drake takes

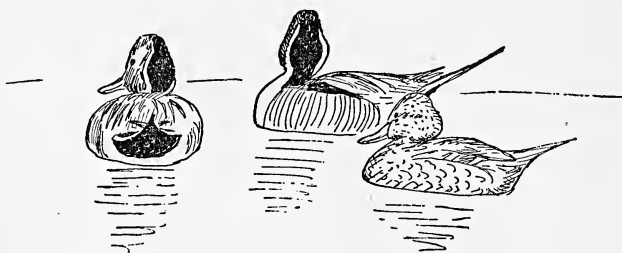


FIG. 23.—The drake Pintail's turning-of-the-back-of-the-head, always without lifting the chin. Notice the differentiation of the plumage on the back of the head, which is especially significant in this behaviour pattern, and compare with Figs. 14 and 42.

up the position with indrawn neck, which position is quite similar to that taken at the beginning of the display, his head feathers are raised evenly all around. One now sees very well the protruding cushion at the back of the head (Fig. 23).

The Pintail has no other sexual behaviour and notes unless we count a peculiar threatening position, which represents a formalization of the Mallard drake's position of attack. Immediately before Mallard drakes attack each other's breasts with their bills they swim against each other with bills close to the surface. The Pintail drake and the Bahama drake take this position as an attitude of threat even when an actual attack resulting in seizing does not take place; in contrast to the Mallard drake he takes this position when he swims or walks up to a strange female with the intention of raping.

8. *The Combat of the Drakes.*

Mutual pushing by drakes which have seized each other by the breast feathers is found just as with Mallard drakes, but the Pintails seem to have a greater dislike of having their feathers roughly handled

by the opponent. They tend more than *Anas* drakes to let go and strike with the wing without holding fast with the bill to the opponent. Bahama drakes are even further specialized in the same direction in their fighting behaviour.

9. *The Post-coital Play.*

Special behaviour of this nature is lacking in *D. acuta*. The drake swims around the duck after complete copulation, giving several burps with or without whistling. (I now rather doubt this. The Altenberg Pintails were not so very good and post-coital display particularly tends to degenerate.) The duck then begins to bathe.

(*To be continued*)

* * *

IMPORT BAN ON PARROTS LIFTED

The Ministry of Health are lifting the twenty-one-year-old ban on importing parrots as from 8th January.

The Parrots (Prohibition of Import) (Revocation) Regulations, 1951, published on the 28th December, 1951, rescinded the Parrots (Prohibition of Import) Regulations, 1930, which imposed a general ban on the import of Parrots, Budgerigars, Cockatoos, and other birds of the parrot species. The London Zoo was exempt from the ban. Birds could also be imported for medical or veterinary research, or if the Ministry of Health authorized the import. During the last two years permission was usually granted by the Ministry for the import of individual pet Parrots. The import of birds for sale was prohibited completely.

The Regulations have been revoked because there has been no significant recurrence of psittacosis in this country since the world-wide outbreak which led to the ban. Furthermore, research has since shown that psittacosis, which was originally believed to be confined to the Parrots also occurs in seagulls, pigeons, ducks, turkeys, and similar birds.

Moreover, modern drugs such as penicillin and the new antibiotics have largely robbed the disease of its dangers. Only one death has occurred in England and Wales in the last ten years.

The lifting of the ban does not, of course, affect any other legal requirements. For example, anyone importing a Parrot from certain countries will still need a Board of Trade licence to import a seed-eating bird.

A Ministry of Health official commented: "The ban was made when there was a world-wide prevalence of psittacosis among parrots. Cases are very rare nowadays and the discovery of new drugs like penicillin and aureomycin has given us very effective forms of treatment."

THE YELLOW SEED-EATER AS A CAGE BIRD AND ITS VALUE TO MULE BREEDERS

(*Serinus flaviventris flaviventris*)

By J. H. WALMSLEY (Port Elizabeth, South Africa)

In addition to breeding Canaries, Budgies, and many kinds of wild birds, I have for some years been intensely interested in that fascinating branch of aviculture commonly known to cage bird fanciers as mule breeding. My object is to produce a completely new breed of domestic Canary; the many difficulties involved will be appreciated by those who are also engaged in this interesting work, and it is therefore unnecessary for me to enlarge on this aspect. I have on occasions met with remarkable results in this field, and it is the object of this short article to illustrate as briefly as possible one such unexpected result. The facts will be of interest to those mule breeders who have not yet tried the Yellow Seed-eater and probably to those Canary breeders who are interested in introducing new colours into domestic Canaries. The story will, I hope, prove to be of general interest, and if it does anything to attract a few more recruits to the ranks of the mule breeders I shall consider my time has not been wasted in the writing of this article.

We South African bird lovers have much to be thankful for. South Africa is a country which literally teems with all descriptions of bird life. We do not have to take into consideration such hazards as snow, sleet, fog, frost, damp, blizzards, and such like when we build our aviaries. These conditions do, of course, occur occasionally in some parts of the country, but rarely to the extent or degree of severity as experienced in the northern hemisphere. We in the Eastern Province, especially along the coast, have to cope with the famous "South Easter", but we know when to expect it, and act accordingly. This is our most serious obstacle.

A favourite cage bird in this country is a handsome little songster known locally as a "Bull-sysie"; it has many other local names, a fact which causes some confusion. The Afrikaaner will frequently refer to it as a Geel-sysie which translated, means Yellow Canary. On page 369 of *Birds of South Africa*, by Dr. Austin Roberts, it is referred to as the Yellow Seed-eater, and the male and female are well illustrated on plate lvi in the same work. The female is of a different colour to the male. On page 21 of *First Guide to South African Birds* it is referred to as Yellow Canary, Yellow-bellied Seed-eater, Shell Sysie, Kleinsysie (*Serinus flaviventris*). This work is by E. Leonard Gill, D.Sc., M.B.O.U., F.R.S.S.Afr. I quote these works for the benefit of those of my readers who have copies of them. To me and also the "Port Elizabeth and District Pigeon and Cage Bird Association", of

which I am a member, it is a "Bull-sysie". Incidentally, there are several sub-species, two of which I possess at the time of writing.

As its name denotes, the Bull-sysie is a Serin, and therefore related to the domestic Canary. It is an excellent songster, and becomes very tame in captivity. I have never known the hen to mate up with a Canary cock, but I believe that this is possible if a large natural aviary is provided. I hope to carry out experiments in this direction at a later date. The Bull-sysie cock mates readily with a Canary hen, and the resulting offspring are good songsters and are good to look at. They are very hardy, and relish sunflower seeds, but also do well on ordinary canary mixtures. I have seen quite a number of these mules and, without exception they have resembled the Bull-sysie in colour and appearance. They do not appear to inherit any of the characteristics of the Canary. I am now speaking from personal experience only. When housed in an aviary with Canaries, these Bull-sysies mix in well during the off season, they get very pally with the Canaries and cheerfully crack up sunflower seeds as fast as the Canaries can eat them; they will also feed Canary fledgelings with great gusto. As the breeding season approaches, however, they become vicious and spiteful, and they make short work of any other cock bird in the aviary which dares to stand up to them. They will puff themselves up into a yellow ball of fury and savagely attack any other cock bird which even dares to sing in the same cage. Even hens are not safe from these attacks. On the other hand, if confined to a smaller cage or aviary *with a hen of his own choosing*, he becomes a model of perfection. He absolutely dotes over her. So much so, that he even objects to her finding her own food. If his mate goes to the food dish he puffs himself up and makes savage darts at her until she flies up on to the perch; he will then gorge himself on all the tastiest morsels, and then proceed to feed her as gently as any invalid is fed. They make very fine aviary birds, but I would not advise the beginner to include them in a mixed collection.

Last year, having paired off my breeding stock, I found that I had a very fine young Bull-sysie cock to spare; this bird I left for the time being in the main aviary. Soon afterwards I observed this bird paying a lot of attention to a young white Border hen, this in spite of the fact that there were two healthy young hens of his own kind in the aviary, both of which were in tip-top breeding condition. I noticed that he spent most of his time cracking up sunflower seeds for his lady friend; when she had eaten to the limit he would then get very annoyed because she would not allow him to cram any more down her throat. His kind attentions were not always appreciated by his lady friend, and she would sometimes attack him out of sheer desperation. As the breeding season got under way, I noticed this pair very busily exploring the aviary for a suitable nesting site, at the same time making them-

selves most objectionable to the other inmates of the aviary. At this stage I removed them to a breeding cage, a fairly large one, and provided them with the necessary requisites. The nest pan was a two pound jam tin cut in half. I have a strong preference for these nesting receptacles. Within a week a fine nest had been constructed, the cock doing his full share of the work and, in due course, four eggs appeared. I had, of course, watched the mating proceedings, which I should add are intensely fascinating. The cock puffs himself out into a yellow fluffy ball, he throws his head back and sings enough to burst his heart. I have never seen a cock Canary rival it. The hen Canary seems to sense that she has a superior mate, and quickly adopts some of his habits.

The first egg hatched out on the fourteenth day and the second hatched on the fifteenth day ; the other two proved to be infertile. I have bred hundreds of birds, but never did I see a cock bird look after his young like that Bull-sysie looked after his, and from his actions it was obvious that he considered that the hen should follow his example. He looked after them so well that I was greatly concerned about the possibility of the young dying from over-feeding, and was greatly tempted to remove them to the care of foster parents. One peep out of the chicks was sufficient to send him scurrying down to the food dish and, if the hen didn't do likewise, he would puff himself up and drive her down with a few good pecks. As the days passed I noticed that all was not right with the colour of one of them. Where the one was a yellowish green, which was expected, the other appeared to be a dirty white with dark stripes. Hearing of this phenomenon, several of my bird fancier friends came to check the rumour ; they all agreed that they had never seen the like before. As the days passed the colours deepened slightly until after the moult, when it became possible to appreciate the colours more fully. The under parts are now a pale cream, and the wings and tail are a very light shade of blue with black stripes, like pencil marks, running from head to tail. The eye-stripes are white, eyes black. In shape and song it resembles its father. At the time of writing this bird is paired up to one of my best cinnamon hens. I test all of my mules for fertility before disposing of them. As my reader will guess, this pair have the place of honour at the moment, and I am anxiously waiting for the results. Incidentally, I entered these two mules at the last local bird show, the blue taking a first and his brother a second prize.

Many people cannot understand why there are fanciers who prefer to breed mules to Canaries. It's a big argument, but perhaps this little story will help to clear up the mystery.

WATERFOWL NOTES

By DILLON RIPLEY (Litchfield, Conn., U.S.A.)

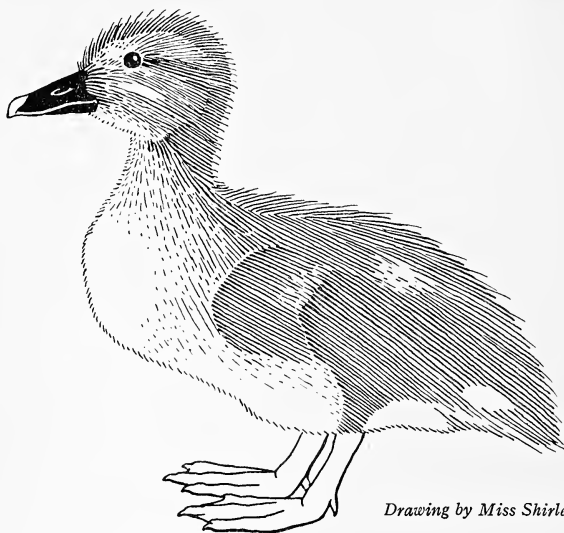
After the successful spring season of 1950, the nesting season in 1951 was a decided disappointment for me as well as for many other waterfowl enthusiasts on both sides of the Atlantic. With certain notable exceptions such as at Leckford and the Severn Wildfowl Trust in England, and Mr. Livermore here in Connecticut, my impression is that most breeders found that waterfowl did not breed freely this past spring. In most cases presumably food conditions were the same. However, I believe many people noted the late spring with its damp, cloudy weather. Another season I think it would be worth while to keep records of the actual hours of daylight throughout the nesting season, for it may well be that there is a distinct correlation between hours of daylight, feeding activity, and gonadal development in our captive waterfowl.

I, for one, was particularly disappointed this Spring that my oldest pair of Redbreasts (from Leckford) did not breed again. Their breeding the previous season and the rearing of three young, was the first record of this species' nesting in the New World. However, this Spring the gander took two geese unto himself, his mate of the previous season and another female from Leckford of the same age. Having watched the birds for considerable periods of time, I cannot help but retain the impression that the diffusion of effort required in keeping his harem together and protected on the same territory which he had chosen the previous spring was too much for him, and the actual threshold leading to nesting was somehow never successfully crossed. I hope another Spring to induce him to concentrate his efforts on a single, monogamous relationship.

The other tragedy of the Spring was the loss of my breeding female Philippine Duck to a Red-shouldered Hawk, the first time in my experience that I have had one of these rather slow-moving Buzzard-like Hawks take a duck from my ponds. In 1950 my pair of Philippine Ducks had courted actively as they had the previous Spring, the female making the typical sideways head dipping motions accompanied by weak quacking characteristic of the Mallard-like tribe of surface-feeding ducks. The male would swim rapidly by her holding himself in one or two stiffly-assumed poses, either with the head and neck elongated upwards, or sometimes rather compressed, the head lower, near the water. They finally nested in late June, laying only four blunt oval eggs with rounded ends, "like billiard balls" as my helper described them. A Philippine naturalist has since told me that he discovered a nest of *Anas luzonica*, the Philippine Duck, on Mindoro Island before World War II, and that it only contained four eggs, but that on another occasion he saw a

duck with six ducklings. Perhaps this is a tropical species which actually has a smaller clutch than a normal temperate waterfowl species clutch?

One duckling was hatched out, a drawing of which is here reproduced, the first duckling of this species known to science. It unfortunately succumbed, and I thought my experiences with these rare ducks

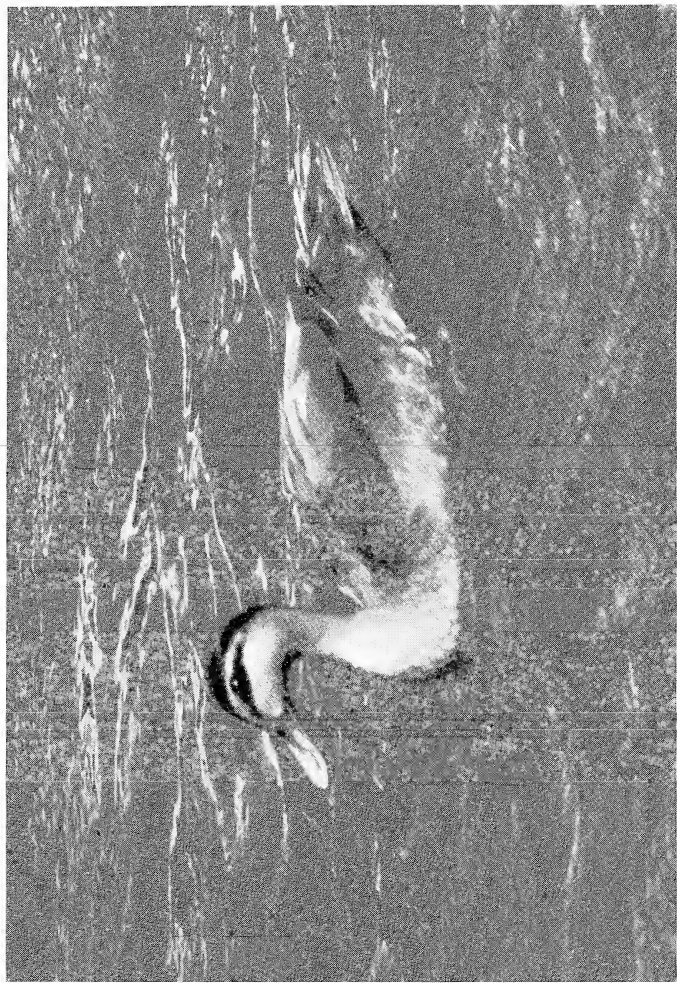


DOWNY YOUNG PHILIPPINE DUCK

at an end, but fortunately we were lucky enough to be able to secure fresh stock this past summer. And so with any luck we should have another nesting.

An attempt to secure eggs from Iceland was a total failure as far as I was concerned, all the eggs being smashed or having broken membranes. Others had better luck, the Philadelphia Zoo rearing some Eiders from Iceland eggs (they reared a Harlequin and some Barrows' Goldeneye in 1950), and Mr. Mackensen this year reared Tufted and Greater Scaup, Common Scoters, and a Barrows'.

Several species of my diving duck bred, but only American Redhead were reared, while my friend Mr. Livermore had good success with Rosy-bill Duck, Red-crested, Redhead, and a number of species of the surface-feeding Duck including the little-known Florida Duck, a small pale subspecies of the Black Mallard. Our Barnacle Geese bred this Spring, while all the others passed up the opportunity. Mr. Livermore, near by, found that none of his Barnacles bred, while he had good success with Barhead, Magellan, and Cereopsis. And so it goes apparently each year. Something breeds, something else fails. I hope that eventually we will have a conclusive answer to these mysteries.

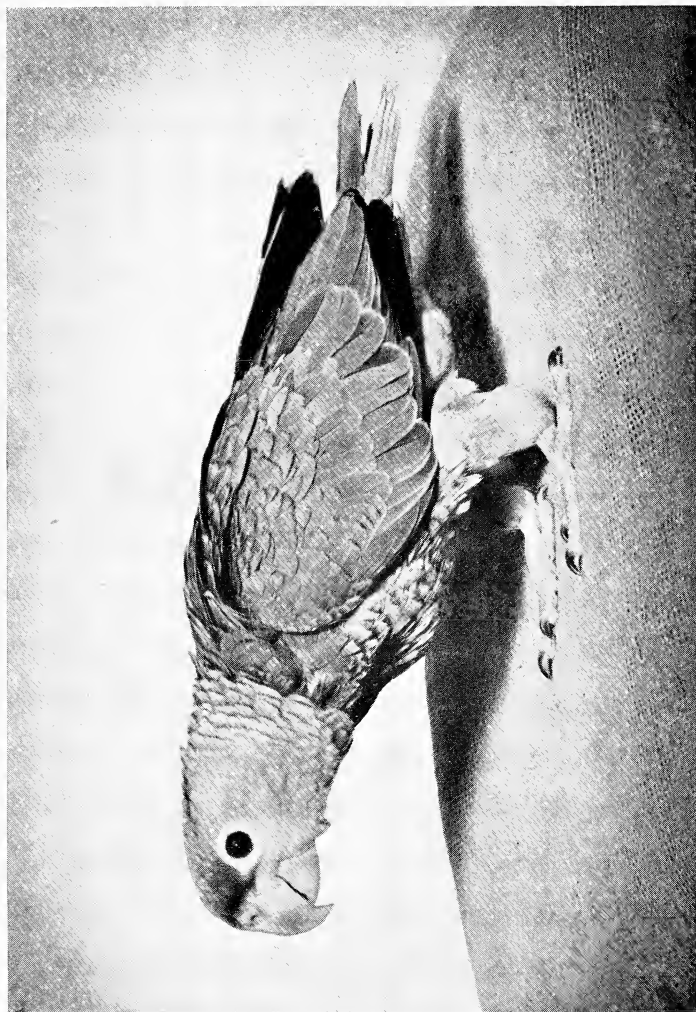


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[Dillon Ripley

DRAKE PHILIPPINE DUCK. THE SEXES ARE SIMILARLY COLOURED.

To face p. 22.



Copyright]

[Kenton C. Lint

FINSCH'S AMAZON. ELEVEN WEEKS OLD.

To face p. 28.

BREEDING OF THE FINSCH'S AMAZON

(Amazona finschi)

By KENTON C. LINT

(Curator of Birds, Zoological Gardens of San Diego, U.S.A.)

We wish to record the breeding in 1951 of a Finsch's Amazon (*Amazona finschi*) in the Zoological Gardens of San Diego. The Amazon was hatched on 1st June, 1951. In Mr. Prestwich's book, *Records of Parrots Bred in Captivity*, we were unable to find an authentic record of this species being hatched and raised in captivity to date.

Indigenous to Western Mexico, from Sinaloa to Tehuantepec, a goodly number of these Amazons have been imported into the United States in recent years. Many have been smuggled in without going through the proper channels for the required period of quarantine.

Our breeding pair of Finsch's Amazons were purchased in August, 1948, and went through a delayed quarantine period of nine months before they were released and placed on exhibit in our collection of psittacine birds. They were both young birds at this time, so we were able to establish the age of their first breeding at the age of three years.

Considered quite common here on the Pacific coast, this little Amazon readily wins the affection of its owner by its pretty, comical ways. As most Amazons, Finsch's Amazon usually speaks in the same tone, whether it be taught by an aged man, a youth, or a woman. It does not possess the pliability of voice which would enable it to vary its speech, as for example, successively to a begging, coaxing, or angry note. Its words are always in the same tone or key. Finsch's Amazons do make wonderful pets because of their small size and pleasant dispositions.

The general colour is grass green above and lighter below. The feathers are blackish or black edged. The feathers on the back of the neck or hind-neck are faintly lilac-banded. The front edge of the wing is pale green. The primary wing feathers are black, the outer webs at the base are green, deep blue at the tips. The tail has a broad yellowish-green terminal belt, narrower on the two central feathers, the outer feathers edged with blue at the base of the outer web. The first five secondaries are red at the base, forming a speculum. The tips of the secondaries are deep blue. The frontal band is maroon or dark cherry red, extending to the lores. The beak is flesh-coloured or white. The feet are pale grey. The irides are orange when adult, dark brown in young birds. The female is not differentiated in colour, but is somewhat smaller.

Twenty-eight days were recorded for the period of incubation.

Our baby was taken out of the nest and raised by hand when it

was five days old, as the parent birds stopped feeding it in a cage where a mixed group of Amazons are exhibited. The eyes were not fully opened until the eleventh day. When thirteen days old, feather tracts were in evidence for the first time on the wings and on the back. On the seventeenth day, pin feathers showed for the first time.

For a period of three months this baby was hand fed with a spoon on our regular Wheat-heart cereal formula which is used for all of the young Parrots, Cockatoos, and Macaws which are raised by hand. At the age of four months, he was eating well, and independent in the matter of feeding.

* * *

RECOLLECTIONS OF SOME SMALL BIRDS

By DEREK GOODWIN (Virginia Water, Surrey, England)

From a somewhat early age until my late 'teens, I kept various small passerine birds. For the most part they were kept in a garden aviary with far too many others of their own or allied species to encourage them to breed successfully. Looking back, I fear that the acquisitive instinct had as much to do with their acquisition and retention as did æsthetic or scientific considerations. Nevertheless, they were of some interest and much beauty, and an account of them may at least emphasize to others the folly of trying to keep too many ill-assorted birds together.

First, both in time and beauty, came the Bullfinches. When I was only six I was taken to a pet shop and told I could choose a pair of whichever birds I liked best. Unprompted by any considerations of the monetary value of the bewildering variety of Canaries, foreign and British birds, I chose what I thought then—and think still—the loveliest of all small birds, the Bullfinch. These birds were taken home and installed in a sizable but otherwise most unsuitable wire cage in the dining-room. After some time they were moved to my bedroom. A Goldfinch and a pair of Canaries (in separate cages) were then added to the collection and I spent many happy hours watching them. The Goldfinch and the Canaries were allowed at frequent intervals to fly about the room, but nothing would persuade the Bullfinches to leave their cage, the door being often left open for half a day without their availing themselves of their opportunities. This was not due, as some protagonists of cage-bird keeping might have believed, to their preferring two square feet of wood and wire to their native coppice, but because in the unfamiliar surroundings of a room the cage evidently represented cover to them, and they were loath to leave it. This was dramatically proved some eighteen months later. We had moved house and were now living in a more rural district. One day the cage with the Bullfinches was placed in the

garden. Within a minute both birds were through a gap in the wire that they had hitherto ignored and away. I was upset at the time, but feel now that it was for the best, and only hope they had at least a few months of freedom together.

Chaffinches were caught, escaped, were caught again, in such plenitude that from 1932 to 1938 the large garden aviary was never without Chaffinches, and the garden itself was always visited by numbers of semi-tame ex-captives. It was my ambition to breed British birds, and the first one I bred (wild Doves do not count, as they breed as freely in captivity as domestic species) was a Chaffinch. There were two hen Chaffinches in the aviary at the time, but as there were also five male Chaffinches, two pairs of Greenfinches, three Orange Weavers, two Java Sparrows, two Pileated Finches, a Saffron Finch, four Turtle Doves, and a pair of Golden Pheasants, conditions were not exactly ideal for their breeding. Nevertheless, one of the hen Chaffinches built a nest and laid two eggs. Perhaps she felt that in such a crowded world small families were indicated. If so, she was quite correct. When the young hatched I ventured to climb on top of the aviary and lie with my face only an inch or two above the sitting bird. This scared her, but she sat tight, and when I proffered her a small green caterpillar on the end of a twig, she not only took it, but after biting it from head to tail in a manner that would make any insect lover cry out against the wickedness of Chaffinches, she fed it to a young one beneath my eyes. I threw large quantities of caterpillar infested branches into the aviary each morning and fed the hen personally with insects on my return in the evening. One of the nestlings fell overboard—owing to lack of spiderweb the nest was not so firm and deep as that of a wild Chaffinch—but the other was successfully reared.

Greenfinches started off with an excited message from a school-friend that "dozens of them" were feeding in his parents' chicken run, and that he had caught two on the previous day and sold them—he was of rather a mercenary outlook—for 3d. each. Next morning saw us installed in his pigeon-house, connected by a long string to the stick propping up a large riddle under which a profusion of corn and sunflower seeds had been scattered. For some hours nothing happened, but just as our hopes were waning a fine cock Greenfinch flew down and, with his kind's typical lack of suspicion, hopped straight under the sieve, sat down in the midst of the feast and commenced to tuck in. Wild with excitement, we pulled the string with such eagerness that instead of the stick merely removing itself and allowing the inevitable results of the force of gravity to effect a capture, it flung the riddle ten feet into the air, at which even the phlegmatic *Chloris chloris* realized that all was not well, and he departed in some haste. My friend soon, however, caught two pairs of Greenfinches which he sold

to me for a very trivial sum. They lived in the aviary for some years and one of the hens nested frequently, but the young were never successfully reared.

In later years this same acquaintance sold me two Bramblings. At this time he had several bird-traps in operation, selling to myself and others such as we would buy and feeding the luckless majority to his ferrets. I was then appalled at this proceeding, but after all older and wiser (?) people now use rarer forms of wild life to feed racing greyhounds, which to my mind at least are far less useful and likeable mammals than the much maligned, but in reality playful and docile, ferret. These two Bramblings cost me a shilling each and, except that they were thereby saved from the ferrets, it was money wasted, since they very cleverly darted down and over my head when I opened the low door of a small aviary in which they were temporarily confined. It was, however, undoubtedly the best thing that could have happened from the birds' point of view. Some years later I had another Brambling whose story was less happy. At the time I was working in a rather dreary part of London, where I passed daily a very dismal little shop that sold bird and dog foods, and occasionally had a few sickly lizards or a Canary or two for sale. This shop was kept by an old and rather decrepit, bearded man who somehow made enough from the venture to support, in life if not in vigour, both himself and an equally old and decrepit white Barbary Dove, who wandered about the shop as freely as her physical infirmities permitted and regarded the old man as her mate. One day, to my amazement, I noticed in a cage in the window a cock Brambling in full summer plumage, but obviously crippled as to its wings and suffering also from an advanced stage of scaly leg. On my inquiring about the bird the old man became almost tearfully sentimental as he told me its story. It had apparently been one of the victims of his last bird-catching outing, fifteen years previously. He had sold it to a man who had now tired of it and returned it to him. The old ex-bird-catcher was most incensed against the Brambling's former owner, who had caused its present condition by keeping it in a cage "much too small". Since the old man evidently considered its present 8-in. square residence amply large enough, I shuddered to think of the size of the prison in which the wretched bird had been incarcerated for fifteen years.

Impelled for once by benevolence rather than acquisitiveness, I paid the two shillings the old man asked for the Brambling and took it home. Its wings were atrophied and incapable of opening fully, and appeared to sport only about half the normal complement of remiges. That this condition had been caused by close confinement I have no doubt whatever, even though in saying this I commit a scientific heresy, for we are told that modern scientific experiments

have proved that birds never allowed to use their wings do not have their flying powers in any way impeded thereby, and can if released fly as well as any others of their kind. Having seen something of the performances of Pigeons and Canaries that had been kept in close quarters, when released, I find this a difficult thing to believe. It was more or less crippled, as to its feet also, so that it was out of the question to enlarge it into the aviary. I therefore put it in a large cage in my bedroom where it lived in apparent contentment for some months and then suddenly died. Although it was October when I acquired it, the bird was, as I have said, in summer plumage. I suspect this was because its unnatural life had caused it either to moult irregularly or not at all. I did, however, once see a wild cock Brambling in summer dress of black and orange on Boxing Day.

Quite the nicest small bird I had was a Pied Wagtail. He was picked up by my bird-catching school friend, who found him with an injured wing. His captor asked sixpence for him, but as he was in pretty bad shape, and I doubted my ability to keep him alive, I stipulated that twopence should be paid cash down and the balance in a fortnight's time if the bird was still alive. The Wagtail not only lived the prescribed time, but soon became well and lively, although not being able to do more than flutter about rather awkwardly owing to his injured wing. He refused insectile mixtures and fed on bread and milk and such insects as he caught in the aviary. On this meagre diet he thrived surprisingly and was always sleek and active. He liked his milk-sop scattered in small separate morsels and always showed some fear of taking it from a dish. If forced to do so, he would approach very cautiously with many hesitations, finally dashing forward, seizing a morsel, and quickly retreating some yards to devour it. Exactly the same tactics are shown by wild White and Pied Wagtails feeding from a lump of soft bread and by many other birds that habitually peck up food of small size. Such birds, even when they have learnt to eat bread, often seem to show some innate fear at tackling a large piece. The end of the Wagtail was sad, for after I had had him about a year, he was killed and eaten by a rat, that arch-scurge of the aviculturist.

Of foreign birds, Orange Bishops were perhaps the most successful: four were purchased and lived for years in the aviary. As is usual, although out of colour when purchased, they all turned out to be cocks. It seems rather strange that although in their native haunts females are at least as numerous as males, yet most of the *Euplectes* Weavers that one saw in England were males, even though imported when in non-breeding plumage. These birds are ideal for an aviary, hardy, beautiful, and above all tireless destroyers of vegetation, so that they give no small assistance in the constant battle against the plant world that the owner of a planted aviary must make in order

to prevent it becoming an impenetrable jungle. Mine ate milk sop, peanuts, and insects, as well as seed, insisted on roosting out in all weathers, and were always fit and active. Like all others of their kind, they did not assume their proper colour in captivity, but in the *Euplectes* Weavers this is no drawback, since the vivid fiery orange of the aviary-moulted bird is as beautiful as the natural scarlet colour.

Red Pileated Finches were a shot in the dark. I had no idea what sort of birds they were, but as they were only 8s. 6d. a pair, I sent off for them. What was my surprise when on opening the box I found two birds of most unexpected appearance. I fell in love with them at once, perhaps in part because their jaunty mannerisms and way of lifting their crests suggested a miniature Jay. At first they were rather scruffy, but they moulted out into perfect plumage and with their soft slate-greys relieved by vivid black-edged crimson crests (they were both cocks) they were—after the Bullfinches—quite the most attractive finches I have kept.

Most interesting, however, were the Java Sparrows. This bird has a great attraction for me. Its soft grey and mauve-pink body colour, relieved by the black and white head, is extremely pleasing, whilst the large bill is of such a wonderfully delicate pink that it does not look in the least unprepossessing. At different periods, I had two pairs, or at least two inseparable birds, but their behaviour was as identical as it was remarkable. Within a day or two of their being placed in the garden aviary, they commenced to roost with the Turtle Doves. At evening they would each snuggle up alongside a Turtle Dove, and if possible slip between its legs. They often got the opportunity to do this if—as usually happened—the Dove resented the Java Sparrows snuggling against it, and raised itself to strike at it. Once the smaller bird was *in situ*, the Dove seemed not fully aware of what had taken place, and would roost peacefully, though one imagines somewhat uncomfortably, with the Java Sparrow beneath it. When the Turtle Doves were nesting, the Java Sparrows always chose an incubating bird to sleep under. On shining a torch on the nest one would see the two white eggs pushed to one side, and on lifting up the Turtle Dove would find the two Java Sparrows side by side beneath her.

In the autumn and winter the doves were caught up each night, and placed in a pigeon-basket in my bedroom in order to protect them from rats, with which the aviary was constantly being invaded. This entailed disturbing the Java Sparrows. These were also brought in and placed in a cage in the same room. One evening I let out the Java Sparrows to see what they would do, and to my surprise they searched about, and on finding the basket with the doves they got in through the wicker slots at the side of the basket, and settled down for the night with the doves. Thereafter I let them out in

the room (with the light on) and invariably they would go straight to the basket, enter it, and spend the night with the Turtle Doves. Since observing this behaviour, I am less and less inclined to be entirely sceptical of the old story that small migrants may sometimes ride on their larger fellow travellers. I do not *think* this happens, but except for the difficulties that would be entailed in clinging on to the smooth feathers, it does not seem much more remarkable than that a Java Sparrow should use a Turtle Dove as the avian equivalent of an electric blanket !

Now I have no small birds, my interest in the Crow tribe and the fact that in 1946, the price of seed and mealworms was such that small birds were very definitely millionaires pets, deciding me to concentrate on the more easily fed corvids and pigeons. But the garden is visited freely by Chaffinches, many of them half-tame, Robins, Dunnocks, Starlings, Song Thrushes, Blue and Great Tits, and the less welcome but unfortunately far more numerous Blackbirds and House Sparrows. All these come with Jackdaws, Jays, and Rooks, for the scraps put daily on the lawn. But the loveliest visitors—the Bullfinches—scorn artificial food. Every February and March from two to six come daily to feed on the buds of two *prunus* trees near the house. This bird is often roundly condemned for its destruction of buds, but it seems doubtful if it really causes much damage. These two little trees are fed on several times daily by the Bullfinches for at least four weeks every year, yet they are always a mass of blossom and foliage later in Spring. And the pleasure the Bullfinches give would be an ample recompense even if damage were done, for if there is in Nature a sight more lovely than a pair of Bullfinches feeding in the bare, dark twisted branches of a *prunus* tree, I have yet to see it.

* * *

THE ZEBRA FINCH AND ITS COLOUR VARIETIES

By EDWARD BOOSEY (Keston, Kent, England)

At the last Council Meeting of the Avicultural Society, the question of the desirability of having more articles on the commoner foreign birds arose, and Mr. Seth-Smith suggested that the Zebra Finch, having nowadays branched out into colour varieties, might profitably have an article devoted to it.

I know it is always a difficult matter to persuade people that even though they may have no very rare birds, it is highly desirable to write articles on whatever birds they may possess and submit them to our Editor, so it is in the hope of encouraging them to do so and thus perhaps set the ball rolling, that I am writing this article about one of the commonest of all cage and aviary birds.

In my young days, and indeed until the nineteen-thirties, Zebra Finches were just Zebra Finches ; very common, very hardy, and excellent breeders. Nowadays however, besides the original wild Zebra Finch, we have colour varieties such as the Fawn, the Silver, and the White. The first mutation to occur—I think about 1934—was the White form, soon to be followed by the Silver and the Fawn in that order.

The White is, like the White Java Sparrow, simply a pure white edition of a mainly grey bird. The Silver is, I think, the most attractive of the three varieties as the chestnut and black-and-white areas show up particularly well against the much paler and more silvery-grey body colour. The Fawn has the same markings, but the general body colour is a pale shade of fawn. A cream Zebra Finch is said to have recently occurred in confinement in South Africa, and I am told that a continental breeder has bred a pure white bird which, however, retains the chestnut cheek patches. It will be seen that there is plenty of room for experiment and possible development of new colour varieties with this very attractive little bird.

Although there can be few readers of this article who do not know what a Zebra Finch looks like, here briefly is a description of the male : A small compact bird with the back and wings brownish-grey and the crown, sides of neck, and throat grey, the two latter being barred with black and with a pure black area on the crop. The cheeks are chestnut separated from a white area round the base of the beak by a black stripe running down from the eye. The sides are chestnut marked and spotted with white, and all the under parts are white. The tail is black broadly barred with white and the beak and legs are orange-red.

The female's underparts have a buffish tinge and she lacks the male's chestnut ear patches and white-spotted chestnut sides, as well as his black mark and barrings on the throat.

Newly-fledged young resemble the hen, but they quickly mature and are themselves quite ready to breed at about two months old.

They are widely distributed throughout Australia and are somewhat nomadic, wandering about in flocks from place to place in search of the grass and other seeds on which they live.

Zebra Finches are, without any doubt, the ideal bird for the avicultural beginner, being extremely hardy, simplicity itself to house and feed, and quite the easiest and most prolific breeders of all the imported foreign Finches—large or small.

In common, I expect, with most other aviculturists, they were among the very first foreign birds I ever kept and they delighted me by producing numerous families, despite the fact that being a schoolboy at the time, I was away from home for long periods and so could not always look after them myself. Very occasionally one does come

across a pair whose nesting activities come to naught owing to their passion for making egg sandwiches—a nest ; a clutch of eggs ; another nest ; another clutch of eggs, and so on—but such misguided couples are fortunately few and far between and generally speaking Zebra Finches are the most exemplary breeders and parents.

They have been bred in a large flight cage indoors, but if possible it is best to house them in an outdoor aviary, which need not be large and should consist of a wooden shelter with wire flight attached.

Any type of nest box suits them. They will really breed in anything, and if all else fails, they will attempt to construct their nest in the food pot ! Perhaps the best nesting site for them is a wooden box with a hole in the side and into this they will stuff hay, rootlets, feathers, etc., in fact anything you choose to supply them with—including green foods such as groundsel and chickweed and even torn-up strips of newspaper !

During the construction of the nest the cock frequently enters the box and, in order to encourage the hen inside, makes a curious cosy little murmuring noise which I have always found quite impossible to describe. His normal note is a penny trumpet sound and his song—if it can be called a song—is really the same thing rapidly repeated several times in succession.

The eggs, from four to six in number and of a faint bluish-white colour, hatch in about thirteen days, and the parents will successfully rear their brood on their own staple diet of brown Indian millet, white millet, and the usual green foods. No extras are necessary, though they may be offered small canary seed, and like all small Finches, are passionately fond of millet sprays.

Zebra Finches, if given the chance, are practically non-stop breeders, so it is important to remove the nests and give them a rest period, otherwise the stamina of both the parents and the young will suffer.

Although a cock Zebra Finch's " bark is considerably worse than his bite ", he is nevertheless a pugnacious little person, and while one cannot but admire his defence of his nest against all-comers—even birds much larger than himself—it must be admitted that his general attitude is bombastic, and that although there might be no fatal results to other birds in the same aviary, he and his wife, particularly when breeding, are much best given a breeding compartment to themselves.

With regard to breeding the colour varieties, the normal grey is, of course, dominant over all the others. Just as a green Budgerigar is dominant over all other coloured Budgerigars.

The Zebra Finch varieties breed true and, by crossing them, split ones can be produced in exactly the same way as with Budgerigars.

WILD BIRD "PATIENTS"

By W. H. SMITH (Penzance, Cornwall, England)

Living almost on the sea edge—the Long Rock beach, Marazion, Cornwall, and having only a tiny garden has its disadvantages in that we seldom see many of the attractive little birds that one usually associates with English gardens. Not for us the flute-like notes of the Blackbird or the versatility of the Thrush. Each winter a Robin visits us, and sometimes sings a little. Blue Tits have been bribed to call by the stringing up of hazel nuts. Their familiar bell-like notes announce their arrival, but like the others they are visitors only, taking the crumbs of food and rapidly departing. They are friends, but not members of the family. Just one very confiding and dainty little bird—again only a winter visitor, has been encouraged to call, by the simple process of grating a piece of cheese outside the window. The Grey Wagtail, a most lovely little bird this, with mincing walk and such aristocratic manners. More often than not, however, he is driven away by the pestilent hordes of Starlings that frequent this area, and fill the air with their raucous screaming. They swoop down in numbers of anything up to a hundred, and despite their usefulness or their entertaining powers of mimicry, as they circle round in their thousands, I could find it in my heart to point a bren gun in their midst and to indulge in a little slum clearance project on my own.

To help balance these disadvantages, there are also certain advantages in living so close to the sea; they are the orphans of the storm. Once a Dunlin with a damaged breast, due presumably to some of the many telephone wires that with the electricity conductors infest this area. My wife and I christened him Charlie, and took him home. He stayed with us for a fortnight, and after only ten days was reasonably tame. We fed him on flies which we dropped into a fish paste jar filled with water, also pieces of worms, and some proprietary egg food. He also fed himself from little heaps of sand which we collected daily from the beach. We kept him in a basement and on the fourteenth day he was flying about, but did not seem too strong on his wings, so that I thought I would catch him and take him on the beach for a "practice flight". This we did (using my old trilby) and as we took him out I could feel him getting more and more excited as the sound of the waves became stronger, but neither my wife nor myself were quite prepared for what happened when I took the cover from the hat. Charlie simply shot straight up into the air until he became a mere speck, and then away over the Marazion marshes until lost from view. He was so excited that we feared he may have split open his wound again, but there was simply nothing else we could do. We wish now, of course, that we had "ringed" him, for as the various Dunlins swoop along the beach we wonder if Charlie is amongst them.

Another patient we had was a Swan. We found him limping badly at the water's edge one sunset. Upon calling him, he waddled painfully towards us, and then collapsed on the shingle. With some trepidation, I picked him up, and was surprised at his lightness. Safely tucked under my arm (slightly hissing at the indignity), we carried him home. We had to pass some G.P.O. engineers who were repairing some telephone cables, and as this was just before Christmas, 1950, we wondered whether they thought he was for the pot; however, nothing was said.

Charlie II was installed in the basement, and was fed on bread, cake, and biscuits, etc., dropped into a basin of milk (for obvious reasons, too, it was just as well the floor was of cement). Charlie II was only with us for three days, yet in even so short a time he became very friendly. My wife especially he knew, and he would make a soft whinnying noise whenever she entered the basement. Our cat and dog were very interested to see the new tenant, but upon our opening the door and meeting the new arrival face to face, and being confronted with a long, aggressively outstretched neck, wide open beak emitting hissing sounds like the blow-off valve of a boiler, Messrs. Dog and Cat decided that their curiosity had been sufficiently satisfied.

Mr. Munelly, the well known R.S.P.C.A. Inspector, collected him the third day, and showed us the little sores on the webs of the bird's feet caused by the shingle and aggravated by the salt water. He took him away and put him on a fresh-water pond at Hayle, and very dignified Charlie II looked when we saw him a few days later. We regretted his going, and had a feeling that had he stayed with us much longer he would have followed us about like a dog. One word of advice the Inspector did give us was to beware of rescuing a Gannet, which bird, he said, would chop off one's fingers with its powerful bill.

A third casualty was a Razorbill, but it was so badly hurt we had to put it out of its misery. Unable to help himself, his wings and feathers being coated with oil, he had been dashed ashore during a storm.

The smallest patient we ever had was the wildest of them all, a baby Blue Tit. The front of our house not being as tall as the rear, he was able to fly over but unable to return. It was with positive relief we watched Tommy go. He was brought up on bread and milk with greenfly and water with a dash of Epsom salts in it. He seemed to thrive on the diet, but except for the first two days only, he was not finger tame. When we let him go through the open window, he made straight for the next door neighbour's bean sticks, and was diligently searching them for twenty minutes to half an hour.

Just to conclude this short article I should like to say that we have not had any waifs and strays last year, but as a matter of interest for approximately three weeks during July a Pelican arrived every evening at seven and settled on the small lake opposite Marazion

Station. He flew off in the morning, but no one seemed to know where he went, and he has gone completely now.

Birds, it seems then, are another of "those things" we take for granted. Always hearing their song upon waking in the morning, it did not occur to us that there could be a house with a garden without them. We know now that there can. When we can afford to move again, before buying another house, we shall ask the owners, "Do you hear the birds?" They will probably think that we are "barmy"—we probably are, but we shall ask just the same.

* * *

BRITISH AVICULTURISTS' CLUB

The thirty-first meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 9th January, 1952, following a dinner at 7 p.m.

Chairman : Miss E. Maud Knobel.

Members of the Club : Major J. E. Adlard, Mrs. J. E. Adlard, Mrs. J. R. Alderson, H.G. the Duke of Bedford, Miss Kay Bonner, W. Brain, G. T. Clark, Mrs. G. T. Clark, A. H. D'Aeth, W. T. Dring, A. Ezra (Patron), Miss S. A. Fothergill, J. C. Garratt, H. J. Harman, H. J. Indge, Dr. F. B. Lake, P. H. Maxwell, G. S. Mottershead, H. Murray, S. Murray, K. A. Norris, A. A. Prestwich, J. H. Reay, D. M. Reid-Henry, R. C. J. Sawyer, E. N. T. Vane, H. Wilmot, J. Yealland.

Guests : Dr. K. Aylwin-Gibson, J. Bailey, Mrs. W. T. Dring, Mrs. J. C. Garratt, Mrs. C. Grimme, Miss S. Indge, Mrs. F. B. Lake, Miss P. A. Lawford, Mrs. S. Murray, Mrs. J. H. Reay, Mrs. H. Wilmot, A. J. Woods, Mrs. A. J. Woods.

Members of the Club, 29 ; guests, 13 ; total, 42.

The programme for the evening was confined to a *conversazione*.

The next meeting of the Club is on **12th March, 1952.**

ARTHUR A. PRESTWICH,

Hon. Secretary.

* * *

NEWS AND VIEWS

Vice-President Jean Delacour has accepted the important Directorship of the Los Angeles County Museum of History, Science, and Art. The appointment dates from 1st February, and his many friends throughout the world will wish him well in his new sphere of activity.

* * *

Members of the Society will wish to unite in congratulating Dr. M. Amsler on being awarded the Victoria Medal of Honour—the highest award of the Royal Horticultural Society—for his services to horticulture in general and work on the lilies in particular.

Fred Shaw Mayer writes from Singapore that he recently arrived there from New Guinea with a fairly large collection of skins for the British Museum (Natural History). The collection was repacked at the Raffles Museum and is now on its way home. During the next few months Mayer will try to collect some birds for the London Zoo and private aviculturists and, all being well, will arrive in England early in the summer.

* * *

Despite the weather conditions J. H. Reay had a successful season and was satisfied with his breeding results. He writes : " Reared Princess of Wales, observation confirmed Holmes Watkins' statement that with this species the incubation period is only seventeen days ; also Bourkes, Redrumps—normal and yellow—Cockatiels, Stanleys, and Rosellas were reared. I have just imported three pairs of Plum-heads, doing well."

* * *

A. Decoux considers last season was not a very good one. Nevertheless, he bred the following species : Rock Pebbler, Stanley, Red-rumped, Bourke, Queen Alexandra's, Blue-winged Grass Parrakeet, Red-collared Lorikeet, various lovebirds, Ashy Dove (*Claravis pretiosa*), Peruvian (*Chamaepelia cruziana*) and Talpacoti Ground Doves, Common and Brush Bronze-winged and Bleeding-heart Pigeons, and many small birds.

* * *

Some of the ornamental waterfowl in the Royal Parks breed from time to time and it is not the usual practice to pinion the young birds ; there are, therefore, occasional escapes. The Committee on Bird Sanctuaries in the Royal Parks has decided that these full-winged offspring should be ringed, so that in the event of their wandering or coming to grief they will not be mistaken for genuine wild birds. In future all young birds will be ringed with the Society's special blue rings.

* * *

C. af Enehjelm, Helsingfors, in spite of being very busy last year, succeeded in breeding many birds. The most interesting result was the breeding of the Black-crested Finch (*Lophospingus pusillus*), possibly for the first time on the Continent ; two nests were reared in succession. Other birds bred included Swainson's Sparrow, Yellow Sparrow (*Auripasser luteus*), Cuban Finch, Green Avadavat, Magpie and Bronze Mannikins, Indian Silverbill, Diamond Sparrow, Plum-headed Finch, Diamond Doves, Painted and Californian Quails, Bourkes, Fischer's and Peach-faced Lovebirds, and about twenty Guiana Parrotlets (*Forpus passerinus*) ; also many Budgerigars, Zebra Finches, and Bengalese.

Leo A. Ara, Calcutta, writes of his Lovebirds : " I've bred the Peach-faced and Masked since 1936, Fischer's since 1937, Nyassaland, Blue Masked, Black-cheeked since 1941. Some years ago, when good old Mr. Frost was collecting birds in Calcutta, I mentioned to him that I had hybrids of *A. taranta* \times *A. personata* and *A. taranta* \times *A. fischeri*. He told me that *A. taranta* had not been known to hybridize with the others. The *taranta-personata* hybrid I have now is larger than the ordinary Masked and has a red forehead, black cheeks and throat, orange breast, blue rump, a little red round the bare white skin of the eye, and red beak. The hybrids are as a result of there being no Abyssinian hens in the aviary. I have had no Madagascar hens either, with the result that a cock Madagascar paired off with a hen Peach-faced. There were five eggs but none hatched out. They were a funny pair altogether as at no time did she allow him to go into the nest, not even to sit at the entrance."

* * *

Many members will have read reports in the daily press of the friendly rivalry of the States of Texas and Louisiana to replace " Peter " and " Paul ", the St. James's Park Pelicans that died recently. " Peter " had lived in the Park for nearly fifty years ; " Paul," a much younger bird, lived only a few weeks after the loss of his companion.

There have been Pelicans in the Park since the reign of Charles II : the first was presented to Charles by the Russian Ambassador. An account is given in John Evelyn's diary :—

9th February, 1665.—" I went to St. James's Parke, where I saw various animals, and examined the throate of the Onocratylus or Pelican, a fowle between a Storke and a Swan ; a melancholy water-fowle brought from Astracan by the Russian Ambassador. It was diverting to see how he would toss up and turn a flat fish, plaice or flounder, to get it right into his gullet at its lower beak, which being filmy, stretches to a prodigious wideness when it devours a great fish."

So that a tradition of nearly 300 years should remain unbroken the London Zoo lent one of its Pelicans pending the arrival of the replacements.

* * *

WATERFOWL RINGING SCHEME—DETAILS OF RECOVERIES

Date ringed.	Species.	Ringed by.	Date recovered.	Place where recovered.
26.7.1950	Mallard	Peter Scott	2.9.1951	Released at Alnwick, Northumberland, and shot at Hartola, Finland.

A. A. P.

NEWS FROM AMERICA

At a meeting of the Southern California Chapter of the Avicultural Society held on 2nd December, 1951, Mrs. Olive W. Gilmer was elected President, Jerome Buteyn, Vice-President, Ivo Lazzeroni, Secretary, and Mrs. George Gray, Treasurer. The following were elected directors: Harold Rudkin, Jr., R. G. Lochran, Alex. Weiderseder, Lyle Wickline, Mrs. Gilbert Lee, Mrs. David Ramsay, and Mrs. Muriel Wright.

* * *

David West reports: (i) Mrs. R. Hubbell, of San Diego, has several Cockatiels that are nearly *all* pure white—except the yellow and orange cheeks are retained; (ii) W. J. Sheffler reared three young from a male Alexandrine \times female Derbryan in 1951 at his Arizona home; (iii) J. R. Brown, of Alhambra, California, has successfully reared two young Lineolated Parrakeets, also in 1951.

* * *

Several interesting hybrids have been bred during the past year. Black-headed Siskin (*Spinus ictericus*) \times European Goldfinch. Professor Carl Naether reports that Felix Smolinski, of Seminole Hot Springs, California, reared three. The same European Goldfinch hen was previously mated to a European Linnet and produced a strong brood of three good young.

Mrs. H. L. Schumacher, Seattle, Washington, writes: "You might be interested in knowing I crossed a male Rainbow Bunting with an orange female Canary. Three of the four eggs were fertile but only one hatched. It (male) resembles the female Canary. However, it has a pinkish cast to the orange feathers—these are very thick and frosted."

* * *

A young Common Tern that was hatched on a gas stove in Massachusetts, featured on a Boston television show, and picked up in a starving condition on a Bronx rooftop was placed on exhibition in the Bronx Zoo on 9th November, 1951. The story behind the bird involves the most extraordinary coincidence in the memory of Zoo officials.

It started on 29th September when Patsy Tomasicchio, of 730 Garden Street, the Bronx, found a helpless bird on the roof of his apartment house. Not knowing what it was, but realizing that it needed help, he took it to the Bronx Zoo and turned it over to George Scott, the Head Keeper of Birds.

Mr. Scott recognized it as a young Common Tern, a bird found

along the Atlantic coast, and diagnosed its difficulty as starvation. He placed bits of fish before the bird, but it refused to eat unless he fed it by hand, a piece at a time.

The bird had a metal band on one leg, with a serial number and directions for sending the band to the Fish and Wildlife Service in Washington. The band was removed and mailed and the bird remained in the quarantine room of the Zoo's Bird House, where keepers could feed it regularly through the day.

During October Eric Kinsey, the Californian ornithologist, paid a visit to General Curator Lee S. Crandall, of the Zoo, and while he was being shown through the Bird House the young Tern was pointed out to him and comment was made that it had been brought in and was being fed by hand.

Mr. Kinsey continued his journey to Massachusetts to call on G. L. Roberts, a business associate in the neighbourhood of Boston. His associate, who is not an ornithologist, mentioned that a neighbour of his, Charles H. Gamage, treasurer of the Lynn, Mass., *Daily Evening Item*, had recently reared and released a Common Tern which had always been hand-fed, and he wondered whether it would be able to find food by itself.

Remembering the bird he had seen in the Bronx Zoo, Mr. Kinsey was able to answer that he was sure Mr. Gamage's Tern would make out all right, because it was being hand-fed three times a day in the Bronx Zoo. There was no doubt in his mind that it was the same bird, even though Mr. Gamage was said to have banded the bird and there was no band on it when Mr. Kinsey saw it.

Mr. Kinsey's comments were passed on to Mr. Gamage by his neighbour, Mr. Roberts, and the early part of the Tern's history was relayed to the Zoo by Mr. Gamage.

On 15th July, 1951, he said, one of his children found the Tern's egg on the beach at the Isle of Shoals, near the Massachusetts-Maine border. The Gamages took the egg home, placed it in a strawberry box lined with a towel, and set it near the pilot light on their gas stove. The next morning the egg hatched and a baby Tern stepped out.

The Gamages fed it bits of fish and it grew rapidly. When it was old enough to fly they attached a Fish and Wildlife band and attempted to liberate it. Every time they turned it loose, even from a buoy well offshore, in an area where other Terns were flying, the bird flew for a short time and came back to them. It never did imitate others of its kind and catch live fish, although it often flew low over the water and could see fish below the surface.

On 19th September "Fish-fish", as they called the Tern, was a guest on Norman Harris's "Living Wonders" television programme in Boston, and ate, bathed, and gave its shrill, squeaking call for the audience.

Still trying to get rid of their guest, the Gamages liberated it as usual on 25th September, and that time it failed to return. Many Terns were flying south at that time, and they supposed that "Fish-fish" joined the migrating members of his kind. Apparently it did attempt to fly south, but not knowing how to find food by itself its strength lasted only until it reached the New York area. Then, either lost or blown inland, it came to rest on a roof-top only a block from the Bronx Zoo.

That it was found and brought to the Zoo is not unusual, but that a travelling ornithologist should see and remember the bird, and by chance be able to connect it directly with the family that hatched, fed, and liberated it, is as far as the Zoo staff is concerned, an almost unbelievable coincidence. It is believable, however, because the Fish and Wildlife Service band that Mr. Gamage attached bore the number 503-77901, and that was the number on the band that the Bronx Zoo mailed to Washington.

* * *

LONDON ZOO NOTES

By JOHN YEALLAND

The most noteworthy addition to the collection is a drake Kerguelen Pintail (*Anas acuta eatoni*), one of the number brought from Kerguelen by Colonel Milon and already described in the AVICULTURAL MAGAZINE by M. Delacour. This is, of course, a sub-species new to the collection.

Three Black Swans (*Cygnus atratus*) bred during 1951 by Lord Wrottesley have been presented by him, and other presentations include a Lapwing (*Vanellus vanellus*), a Greater Sulphur-crested Cockatoo (*Kakatoe galerita*), and a small collection of various Waxbills.

The birds deposited are four Brown Pelicans (*Pelecanus occidentalis*); one Pink-backed Pelican (*P. rufescens*); two Eastern White Pelicans (*P. roseus*); two Crested Pelicans (*P. crispus*); an Osprey (*Pandion haliaetus*), and a Little Pied Flycatcher (*Muscicapula m. melanoleuca*), while those received in exchange include two Rosy-faced Lovebirds (*Agapornis roseicollis*); a pair of Southern White-cheeked Finch Larks (*Eremopterix leucotis smithii*); a pair of Rain Quail (*Coturnix coromandelica*); a pair of Red-faced Weavers (*Quelea erythrops*); and a Siskin (*Carduelis spinus*).

The breeding pair of Great Eagle-owls have commenced preliminary scrapings in the peat moss on the floor of their shelter. This handsome bird is on the British list as a rare visitant. A pair seen in Scotland during the war were thought to be nesting, and it is a pity that this was never verified, for it would, of course, have constituted a first record for the British Isles.

REVIEWS

BIRD WONDERS OF AUSTRALIA. By A. H. CHISHOLM.
Illustrated. 285 pages. Sydney and London: Angus and Robertson, 1948. 15s.

This revised edition—the book made its initial appearance in 1934—is a compilation of curiosity-arousing information about “unusual” birds—a sort of “Believe It Or Not” collection of out-of-the-ordinary facts and theories concerning the behaviour of certain species of birds “down under”.

Since the author deals with the little-known types of behaviour of given birds, his book is quite likely to find favour not only with bird-lovers as such, but with anyone at all interested in bird behaviour. Few persons know that the Satin Bower Bird constructs what Chisholm calls a “playhouse”, a “museum”, and a “theatre”, and that the decorative materials employed for the purpose are blue, yellowish-green, or creamy-yellow. Always they contain something in *blue*. And, lo and behold, the Spotted Bower Bird in addition has a pronounced flair for painting his bower—with, of all things, chewed-up grass mixed with saliva! The chapter devoted to the Lyre Bird reveals this unique creature as a great mimic, emphasizing the fact that both the song as well as the display indulged in are largely recreational. In still another fascinating chapter we are given some insight into the quaint antics of mound-building birds—the Mallee-fowl, the Jungle-fowl, and the Scrub Turkey, which at times bury as many as from twenty to thirty-five eggs in a mound, heated by the sun or else by the warmth produced by decaying vegetation!

There are many other intriguing chapter titles, as “The Land of Parrots”, “Guests of the Mistletoe”, “Queer Relations of Birds and Insects”, etc., etc. In sum, the book affords its readers a widely diversified fare, the chapters being uneven so far as treatment and nature of subject matter is concerned. But this unevenness is not likely to prevent the book from being widely read. Exceptionally clear photographs greatly add to the charm of this book, many depicting birds in unusual poses and situations.

CARL NAETHER.

THE LAND OF THE LOON. By G. K. YEATES. Country Life, Ltd., London. Price 18s. net.

A most delightful book. The account of the author's experiences in two seasons of bird-photography in Iceland is told with feeling and, in places, humour. Singleminded “bird-men” may think that the author digresses overmuch to tell of the people and scenery of Iceland, and the vicissitudes of camp life; but in the reviewer's

opinion such digressions are of great charm and interest. It must not be thought that birds are neglected. On the contrary, the reader will learn a good deal about the breeding habits of Great Northern Divers, Purple Sandpipers, and other species likely to intrigue the stay-at-home bird-watcher.

The reviewer cannot agree with the inference (p. 146) that serious ornithologists are of coarser fibre and less sensitive to the beauties of nature than shooting men; and finds it hard to believe that the Icelandic Snow-Bunting differs from its species elsewhere in not feeding its young after they leave the nest. Such points are, however, minor irritations in an otherwise excellent book which should give pleasure alike to bird-watchers, ramblers, sociologists, and armchair-travellers. It is illustrated with many excellent photographs, only one, alas, in colour.

D. G.

MEXICAN BIRDS : First Impressions based upon an Ornithological Expedition to Tamaulipas, Nevo León, and Coahuila, with an Appendix briefly describing all Mexican birds. By GEORGE MIKSCH SUTTON. Illustrated with water-colour and pen-and-ink drawings by the author. Norman: University of Oklahoma Press, 282 pages, 1951. \$10.00.

This is one of the most interesting and readable bird books which have come into this reviewer's hands. It is interesting because we have so few books devoted to the birds of Mexico, concerning which many American bird lovers, especially those living in California, Texas, and other states not far distant from Mexico, are, to say the least, curious. It is readable because it is written in an informal, narrative style, spiced with personal experiences and observations which at once take the book out of the class of more or less impersonal, technical reference works, and which are quite likely to prompt a reading of the book from beginning to end. Best of all, the book is factual and thoroughly objective in its point of view, dependable in the descriptions of the numerous Mexican and American birds seen, their exact identification, their habits, and their habitats.

As you read *Mexican Birds*, you will find yourself accompanying in spirit the three experienced birdmen—the author, Thomas Dearborn Burleigh, and the late John Bonner Semple—and enjoying their company very much indeed. You will share their discoveries as well as their disappointments and delight in their observations of bird song, bird flight, and bird behaviour in general. Of the Mexican species encountered by this expedition, many will be new to you, while many of the American birds you will have met before. You will enjoy immensely the birds appearing in water-colours as well as in black-and-white drawings, because they are very faithful and exact—very

much "alive". These splendid illustrations alone, indicative as they are both of the author's artistic ability as was as of his sharp perception of birds *individual* appearance and habit, are worth more than the price asked for this handsome volume.

To give you a good idea of the author's writing, I can do no better than quote, in part, his hearing the Brown-backed Solitaire or *Jilguero* for the first time :

Hardly had I found firm footing beneath the spreading branches when the song began again, directly overhead. This time the opening syllable—a sharp, ringing note—stirred my memory. *Kler!* it started. Then another *kler*, and another, then that sparkling shower, that "bright effluence of bright essence increate", which poured over and all around me. It was incredible. The song was so loud and clear that I could almost feel it falling . . .

I did not know it at the time, but *Kler* was a Brown-backed Solitaire (*Myadestes obscurus*), a truly celebrated songster, beloved of the Mexicans as a cage-bird and called by them the *jilguero*. All these solitaires were really thrushes, members of the family Turdidae . . .

Owing to its readability and splendid "practical" beauty, *Mexican Birds* should find a favourite place on the bookshelves of all "bird-minded" persons. There is a useful appendix describing clearly and concisely ALL Mexican birds.

CARL NAETHER.

RECORDS OF PARROTS BRED IN CAPTIVITY. Part IV :
RING-NECKS AND KINGS. By ARTHUR A. PRESTWICH. London,
1951. Price 7s. 6d.

The fourth volume of *Records of Parrots Bred in Captivity* is well worthy of its predecessors. Thirty-seven species are dealt with, and the correlation of the full data on the Alexandrine Parrakeet and Indian Ring-necked Parrakeet and their colour varieties is particularly valuable.

P. B-S.

* * *

NOTES

NATIONAL CAGE BIRD SHOW AT OLYMPIA.

The National Cage Bird Show was held at Olympia on 6th, 7th, and 8th December, in the hall of the same name, and the lighting, heating, and accommodation were a considerable improvement on the previous year, both for the competitors and the trade exhibitors. For a change, too, the weather was favourable, being mild and free from rain, cold, or fog; in consequence the attendance was greater than the previous year. Although the total entry was not a record, it was very close to one, and the quality on the whole was high. Budgerigars created a new record of over 2,000 entries, and the Foreign classes were more numerous and well supported. Once again, Messrs. Norris and Silver were judging, and the Duke of Bedford graciously undertook the psittacine classes.

To illustrate the care which had been given to detail by the organizers, it may be mentioned that electric thermostatically controlled heating bars were fitted under some of the staging. However, even the staging came in for criticism in some quarters. It is unfortunate that visitors will crowd round the foreign birds in particular to such an extent that it is almost impossible to see those on the lowest tier. Throughout the three days, whilst the exhibition was open, it was very difficult to make a thorough inspection of all classes.

Where an exhibitor had entries in more than one section, such as Foreign and British—his name and address was indexed in a special section of the catalogue—a most irritating practice, which confuses both stewards and public alike.

The classification was well planned with one or two minor exceptions. No Shama was exhibited, although there are many good ones now in the country, because they were to compete with Tanagers and Fruitsuckers. Only one pair of Zosterops was entered to compete with small Tanagers; this class had nine entries and seven awards, yet the Zosterops were unplaced. In view of the number of Foreign entries, the time is obviously approaching when wrong classing will penalize the exhibitor. Indeed it was apparent that sufficient care in dispatching and entering birds was not being exercised in some instances—having made more than one entry in one class, several exhibitors failed to place their entries in the correct sequence, with the result that one found some birds incorrectly labelled. For example, a "Dartford Warbler" might appear in the catalogue as a "Black Cap"—not through ignorance, but only carelessness. Moreover, when the total entry is sufficient to engage the services of three judges, it is too much to expect errors to be rectified, as they most probably are not revealed until most of the judging is completed, and may entail complete revision of the awards in a class judged earlier on. Some exhibitors would be well advised to give greater consideration to quality than quantity, a bird shown in anything but top condition can do shows more harm than good; there is generally some meddler searching for the opportunity to raise a howl about cruelty of bird keeping.

The major awards were as follows: Best Foreign, Mr. R. C. J. Sawyer's pair of Short-billed Minivets, these birds were cage moulted and shown in wonderful condition. The best Parrot-like award was gained by a lovely cock Manycolour. On the whole the Parrot-like birds were disappointing in numbers, this of course being due to the limited stock available for exhibiting to-day. One exhibit also deserves special mention, a pair of Yellow-headed Gouldians by Mr. Dulanty. This is the first time they have ever been benched in the country. Visitors were also able to see many welcome reappearances such as the Naked-throated Bell-bird, Touracous, Cissas, Toucans, and Toucanettes, Pittas, Wilson's Bird of Paradise, Humming Birds, Sugar Birds, and Sunbirds. Definitely, the exotics are coming back, and obviously are once more the centre of attraction to the casual visitor.

The smaller birds were also very well represented, both among the seedeaters and softbills. Among the Parrots, there was not much to report. The Manycolour well deserved his position; some of the others were very fine specimens; some also were poor specimens, and not representative of the stock we have in the country. The Sulphur-crested Cockatoo was a nice bird, and undoubtedly of some character, but under normal conditions he would probably have been disqualified for using his owner's razor to improve his tail. One pair of Parrots receive my condolences, a nice pair of Jendaya Conures. I think they were very unlucky in being placed third below the pair and odd cock Derbyans.

The removal of the Parrot ban should ensure that the Foreign entry next year may be one to which we look forward with great expectation.

E. N. T. VANE.

OTHER ASPECTS OF THE NATIONAL SHOW.

With memories of past correspondence in the A.M. I felt rather like "a merlin in a flock of starlings" (as the Faeroese, with apt simile, term someone who thrusts himself where he is not welcome), as I wandered around the show at Olympia. I know that any fool can criticize—I can do it myself—but feel that a few criticisms will not come amiss. The Fancy press will doubtless ere this appears have published screeds eulogizing the National, profusely illustrated, as usual, by photos of the winners, which all too often depict less clearly the beauty of the birds than the plainness of their owners. Also I gather an appraisal of the Show will appear in the same issue of the A.M. as this.

Since my role is that of a critic, I will not dwell on the obvious good health of most of the exhibits or the steadiness of many of them. Still, it would be churlish to make no mention of the very favourable impression given by many of the British and foreign softbills in particular. I was especially impressed with the pair of Tree Pipits and the Lesser Whitethroat, whose beautiful condition in their roomy cages did much to allay the distaste aroused by some of their competitors.

Now for adverse comments.

(1) A large proportion of the non-domestic (and some of the domestic ones) birds exhibited were either trying desperately to escape or else squatting on their perches in that tense defensive posture that tells as surely of nervous stress. It was noticeable with the British Softbills (among which were two Oriental Black Redstarts!) that in general the birds in small bare cages were more panicky and restless than those in larger cages with greenery.

(2) Many birds had broken feathers, or cut their foreheads in their efforts to escape. Some of the prizewinners had cut foreheads, perhaps done after the judging. I know how easily such injuries are done in a moment's panicking, and that they soon heal, but only the most purblind fancier will suggest that a bleeding head peering from a tiny cage is a good advertisement for bird-keeping.

(3) In an aviary with Ornamental Pheasants (mostly mongrels) and Parrakeets, one of the cock Reeves had badly cut the top of its head (the blood showing up on the white feathers in a very conspicuous manner), and the Amherst had injured both head and wing, although the latter looked to be an injury of some standing.

(4) I was surprised to see that a creamy-pink and black Short-billed Minivet and two blue Green Magpies (*Cissa chinensis*) had won high honours. They certainly looked very fit, but it seems odd to award prizes to birds whose natural colours have been lost owing to some adverse factors of captive life. Incidentally, I was informed by a fancier present that if correctly fed *Cissas* will retain or even regain their natural green and red colour.

(5) A bird with a deformed bill was awarded third prize. When I saw it (Thursday and Saturday evenings) it did not look in very good shape, anyway. I suppose as it was a species seldom kept, one's attitude ought to be that of Dr. Johnson towards educated women and performing dogs, "The wonder is not that it is badly done, but that it should be done at all."

(6) The tiny cages that the British Finches and Buntings are staged in are an abomination, although the birds' feet would doubtless keep cleaner if some more suitable floor covering than seed were used. The layman at the show assumes—quite naturally since no effort is made to enlighten him—that the birds are permanently kept in these wretched cells. I overheard four people commenting loudly on the cruelty of this, and for everyone who made vocal protest at the Show, it is probable that there were fifty who kept silent, but will protest more effectively elsewhere.

(7) The educational value of the show (about which we often hear a lot talked) would be much increased if the cages were labelled with both English and scientific names of the birds, or perhaps only the former, but the scientific name appearing in the catalogue as was so sensibly done in the case of the reptiles. On my second visit on Saturday I was pleased to see that at least some of the Foreign and British birds had been labelled, albeit one or two of them incorrectly.

(8) Fancier's jargon, such as the ridiculous and inapplicable name "Black-start" for the Black Redstart, should not be used without an explanation. Even more foolish was the attempt to perpetuate the joke in the A.M. correspondence by exhibiting Pheasant \times Domestic Fowl hybrids as "Phantoms" with no word to explain to puzzled visitors that these were not some species of bird correctly so named, but interesting hybrids that had been so dubbed in a light-hearted moment.

In conclusion, I am still of my opinion that bird shows exhibit bird-keeping in an unfavourable light. But if the British and Foreign birds were all staged in the sort of quarters the Tree Pipit pair were shown in. If measures were taken to inform the public that the birds were not normally closely confined. If the cages were named and labelled, correctly. If some facilities were given in the Show cages to enable hole-roosting birds such as Tits to spend a comfortable night, and if the cages, whilst in full view, could be so placed that the public could not—as I saw many doing—poke, and shake, or cough, pant, and smoke over the birds, then, and only then, bird-shows *might* do more good than harm to aviculture.

DEREK GOODWIN.

* * *

CORRIGENDUM.

In the review of *Wild Wings* which appeared on p. 238 of the November–December number of the Magazine, 1951, it was in error stated that this book was published by the Fanfare Press, Ltd., whereas in fact it was published by Messrs. Victor Gollancz, Ltd., London.

* * *

CORRESPONDENCE

PHANTOMS

I was indeed very interested in Mr. F. E. Thomas's letter.

Perhaps I ought to have put more exclamation marks after my remark about being the first to breed "Phantoms" because, of course, I did not seriously claim to be the first person to cross a Pheasant with a Bantam, as I was aware that this had been done before.

What particularly interested me in Mr. Thomas's letter, however, was that his hybrids and the chick that was hatched here should have had the same parentage except that in our case the sexes of the parents were reversed—cock Golden Pheasant \times hen Sebright Bantam. It seems curious that (assuming, of course, that Mr. Thomas's hybrids are males) the most gorgeous of the pheasants mated to one of the prettiest of the bantams should produce offspring "rather uninteresting to the eye, the colour being a dull brownish-black", and it makes one wonder whether the cross—but bred the other way round—with a cock Golden Pheasant as one of the parents, might not be considerably brighter. Somehow I rather fancy it would, but I have never tried the experiment of breeding the same hybrids both ways as it were with any species of birds, and it would be interesting to hear from someone who has, whether the progeny in each case look alike.

Incidentally it would seem that it is easier for a male Bantam to mate with a female Pheasant than vice versa, as the brief and snowy encounter of Mr. Thomas's escapee cock Sebright Bantam and hen Golden Pheasant resulted in two hybrids, whereas the two years my cock Golden Pheasant has spent with his three Bantam wives has produced, besides dozens of infertile eggs, only two fertile ones, one of which hatched but died, the other being dead in the shell.

While my cock Golden Pheasant was very devoted and attentive to his Bantam hens, I doubt if they ever really took him seriously as a husband, since he was such a vainglorious, gaudy mountebank of a fellow—and they were such typical suburban housewives!

It was amusing to see with what trepidation—and keeping close together—they would sally forth to feed at the same food dish, and then their look of unutterable boredom when the Pheasant—green-gold eyes blazing lecherously and black and orange cape spread to the full—suddenly rushed out at them from a bamboo thicket and proceeded to hiss at them and tear round them in ever narrowing circles. They were clearly shocked at such unbantamlike behaviour; they became giddy; and

finally, when they could bear it no longer, they jumped cackling out of the magic circle and, still clucking their disapproval, hurriedly took refuge on the highest perch in the shelter!

BRAMBLETYE, KESTON, KENT.

EDWARD J. BOOSEY.

I did not know that the above-mentioned hybrid was anything new, as the cross between pheasants and fowls has been known a very long time. It is over thirty years since I bred one from a Game Bantam hen and a Golden Pheasant cock. The most astonishing hybrid I have ever heard of is the one reported from the Continent. This is a Swinhoe cock Tragopan hen hybrid. I had always regarded Tragopans as being gorgeous Partridges. They differ entirely from Pheasants in their short tails, spotted plumage, diet, and especially in their sexual display. I believe the latter is quite unique amongst birds. Another wide cross is that between an Impeyan cock and a common fowl hen, which I saw at Clères.

UPPER CUMBERWORTH, HUDDERSFIELD.

G. BEEVER.

TURQUOISINE PARRAKEETS

According to Mr. West's description of the Turquoisines he has in California, they would appear to differ in several respects from normal Turquoisines as we know them in Europe, and I think it is important for the sake of intending purchasers of these parakeets that the differences should be pointed out:

Firstly. Normal hen Turquoisines do *not* have red wing patches, smaller but no less bright than those of the cock. Their wings are simply green and blue, with no red patch.

Secondly. Normal young cock Turquoisines do *not* leave the nest with red wing patches. What they do have is a very faint brownish tinge where the wing patches (which are chestnut-maroon rather than red) will later appear, and the former are not easy to see unless the bird is looked at in strong sunlight.

Thirdly. Normal adult cock Turquoisines do *not* have brilliant yellow-orange breasts. The colour is pure lemon-yellow, some of the feathers on the upper breast being tipped with green. This, however, is a variable feature, some specimens having almost the whole of the breast yellow, while in others the admixture of green on the upper breast is very marked.

BRAMBLETYE, KESTON, KENT.

EDWARD J. BOOSEY.

THE CATCHING OF CONGO PEACOCKS

I write to draw attention to the miserable tale of destruction of Congo Peacocks by Charles Cordier, U.S.A., in the last issue of the AVICULTURAL MAGAZINE. In all the years I have been a member of the society I cannot remember anything of such an unpleasant nature. This is the revolting tale of the unhappy fate of 16 to 17 birds besides a brood of chicks whose parent died. The final "achievement" of taking six males and one old female to America is totally eclipsed by the damage done in killing so many females. The article has not even the merit of containing more than sketchy details of the natural history of the species. I feel sure that many members must also abhor not only the article but the methods adopted by this man in his attempt to capture Congo Peacocks.

Few aviculturists would want to keep rare birds or indeed any birds if it were known that the price of obtaining the odd specimen meant the destruction of large numbers in an inhuman manner. I can only imagine that the repetition of such articles in the Magazine will arouse indignation, bring discredit to our society, and rightfully attract the attention of the protection societies to the unwarranted cruelty adopted by some individuals in collecting live birds.

WOODSIDE, BEITH, AYRSHIRE.

ALASTAIR ANDERSON.

(The Editor does not accept responsibility for opinions expressed in articles or correspondence.)

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The fourteen Candidates for Election, proposed in the November-December, 1951, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

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 WILLIAM W. DIRE, to 127 N. Humphrey, Oak Park, Ill., U.S.A.
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 K. J. SMITH, to Paignton Zoological Gardens, Paignton, Devon.
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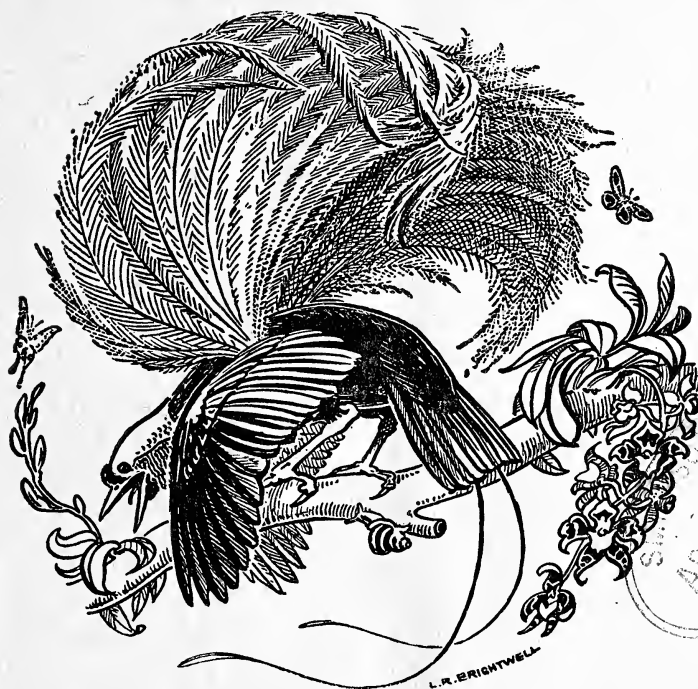
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HIS LATE MAJESTY KING GEORGE VI WITH AVIARIES AT WINDSOR.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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MARCH-APRIL, 1952



The grief on the death of a Sovereign, who had made himself so much at one with his people that his passing was felt as a personal loss by all his loyal subjects, was not confined to the British Commonwealth alone, but was shared in full measure by that great nation the United States of America. The universal admiration for His late Majesty, George VI, who was not only a great King but a great man—by his example of high ideals, unwavering courage, human sympathy and understanding—was universal, and as sincerely felt by countries overseas as in his own island home. Even in his death our gracious and beloved King continued to serve humanity, for their common sorrow has drawn the British Commonwealth of Nations and their American cousins even more closely together.

NOTES ON SOME BIRDS OF THE BRITISH CAMEROONS FOREST

By JOHN YEALLAND (London, England)

During the winter of 1947-48 I went with my friend, Gerald Durrell, to the British Cameroons in order to make a collection of birds, mammals, and reptiles and some notes on the birds seen *en route* and during our stay of several months may be of a little general interest.

We sailed from Liverpool and in St. George's Channel two Starlings passed over the ship. They appeared to be undergoing an involuntary migration from Ireland, for they were being carried along by a fairly strong north-westerly gale and seemed, as they passed by, to be striving to alight in the rigging, but were powerless to do so and were soon swept out of sight in a south-easterly direction.

The night we were passing through the Bay of Biscay, or actually just outside it, a Storm Petrel flew into the bo'sun's cabin, the first that either he or any of the officers had known to do this.

It seemed rather weak from exhaustion, so we took it to our cabin and, feeling that our prestige on board was at stake, decided to try to feed it, so asked the steward for a little raw meat, whereupon he, being accustomed to the realm of plenty and regardless of the size of this tiny Petrel, brought a large plate of steak. The bird, very unwillingly, swallowed a few small shreds of this and by evening it had brightened considerably.

None of the crew knew this bird, but when they were told its name they predicted some rough weather, and they were certainly right, for that night a severe gale blew up and the ship pitched and rolled to the accompaniment of much crashing of crockery below.

The little bird remained sitting in the bottom of the waste paper basket and did not attempt to escape. The next morning, off Cape Finnisterre, we released the Petrel after taking a few photographs of it. It was loth to go and seemed anxious to creep into some dark place, such as under my jacket. It was quite unafraid of us and it was only when we put it on the rail and it tottered over the edge that it took flight and was quickly lost to view.

It seems miraculous that these apparently frail birds can live at sea, generally in the roughest weather, but no doubt part of the explanation is that they do not strive against the wind but glide rather than fly, taking advantage of every current of air.

Few other sea-birds were seen even round about the Canary Islands, between which we passed; one or two of the birds looked in the distance like Gannets in the immature plumage and there were a few of what appeared to be a species of Skua as well as two species of small gull, both pretty and graceful birds.

The flying fish were interesting to watch, and in these days when fish are exhibited at cage-bird shows, a note on them from my diary might not be seriously out of place.

“During the morning we had an excellent view of a number of flying fish, some of them quite small—less than 4 inches—and others, possibly of another species, up to 8 inches.

“We saw quite clearly the method of the flight: the fish rises from the water and glides at a considerable speed not far from the surface and with only a gradual loss of height, and if it desires to continue to glide further when it has gone down to within an inch or two of the surface it dips its tail into the water and by rapid lateral movements of it together with quick beats of the large pectoral fins it regains its impetus. One glided some 50 yards, in the course of which it dipped its tail once. Sometimes they glide in a direct line and sometimes they turn into the wind.”

At last, in the early morning mist, we saw some rocky islets in the bay at Bota, near Victoria, and as the mist cleared we caught sight of the coast—a beautiful sight with the vivid greens of the palms, trees, and other foliage.

Very soon a ramshackle canoe came towards the ship, and when the anchor had been dropped it came alongside, one occupant baling out the water at frequent intervals while the other paddled.

They had in a small cage a Blue-billed Seed-cracker (*Spermophaga hematina pustulata*) which they hoped to exchange for a shirt. A few Vulturine Fishing Eagles (*Gypohierax angolensis*) flew near the ship; these seem to be common on the coast and even far inland, wherever there are rivers one sees a few. I was brought two, one of them still in the brown immature plumage, at Kumba, some sixty miles inland which the bringer said he had caught while they were fighting on the ground. These readily ate fish, but later, when for some reason the fish supply failed for a few days, they ate raw meat, and thereafter had no taste for fish, sometimes eating none at all for a day. On these occasions, when the following morning the cage trays were cleaned, the very soiled and stale fish were retrieved from the rubbish by the native carpenter and wrapped in a piece of banana leaf for his own consumption, but he thrived on them and never suffered from ptomaine poisoning.

A conspicuous bird walking sedately about the grass in Victoria was the Buff-backed or Cattle Heron (*Bubulcus i. ibis*).

These birds are naturally tame and show considerable intelligence in their search for food, walking about round the feet of any of the grazing hump-backed cattle or goats, or standing at a respectful distance from the natives engaged in cutting grass so as to catch the disturbed grasshoppers.

No town or village is without the African Black Kite (*Milvus migrans*

parasitus), a scavenging bird, which is always circling in search of the stray chicken or other food.

Early the next morning I saw a flock of Orange-cheeked Waxbills feeding on the tiny seeds of a species of grass which grows in any open space. One expects to see few and rather common birds so near a town but when, later in the day, we went to some rather neglected plantations at the back of the Rest House, there was such a great variety of birds that I was glad of Bates' *Handbook of the Birds of West Africa*, which Mr. Peter Scott had kindly given me—as, indeed, I was on many future occasions.

It should be mentioned here that the common names used in this article are those of Bates and the scientific ones those of Sclater. Among the birds identified with certainty at this place within an hour or two were a small flock of Black-headed Waxbills (*Estrilda atricapilla*), a Senegal Coucal (*Centropus s. senegalensis*), some Black-crowned Bee-eaters (*Merops albicollis*), a single Cameroon Coly (*Colius striatus nigricollis*) which seemed to be alone, for I did not see or hear any others, a Didric Cuckoo (*Chrysococcyx caprius*), some Pied Crows (*Corvus albus*), a bird quite as cunning and hard to catch as its much more persecuted European relatives, and, standing in the stony bed of a shallow stream, an African Open-bill (*Anastomus l. lamelligerus*).

A Sacred Ibis (*Threskiornis aethiopicus aethiopicus*) flew over; some weeks later I saw one of these in company with a Buff-backed Heron far inland and evidently on their northward migration.

One or two Common Sandpipers were seen and there were, of course, many Weaver-birds, one of which appeared to be Vieillot's Black Weaver (*Ploceus nigerrimus*), the males of which are very conspicuous with their wholly black plumage and bright yellow irides.

The Village Weaver or Palm-bird (*Ploceus c. cucullatus*) is another common one, while round about the Rest House and, indeed, about any of the villages, the most noticeable bird was the Gaboon Bulbul—I believe the sub-species *Pycnonotus barbatus nigeriæ*, for I did not see one with more than the faintest tinge of yellow on the under tail-coverts. These birds possess a certain insolent charm and they were always the first to sing in the early dawn—a discordant inconsequential song. I believe they would prove an entertaining semi-liberty bird in this country, though destructive to soft fruits.

The pretty Blue-spotted Dove (*Turtur a. afer*) was often seen, always a pair together, picking about on the gravel paths.

On a flowering bush near the Rest House dining room a Sunbird came to feed; I believe it was Reichenbach's (*Anabathmis reichenbachii*), and the only one I ever saw.

In a palm plantation near Victoria the only birds seen were a small flock of Grey-breasted Waxbills (*Estrilda n. nonnula*), a bird not seen elsewhere. There were, of course, many Swifts, Martins, and Swallows

but even with field glasses it was very difficult to identify them. One species was nesting in January, the large untidy nests being built (mostly of a kind of thistledown) on the beams of the roof of a store close up under the corrugated iron roof, which must have been a very hot situation in the midday sun.

Two quite common Kingfishers were the Blue-breasted (*Halcyon m. malimbica*) and the Pigmy (*Ispidina p. picta*), both grasshopper feeders. I was from time to time brought several of the Pigmy Kingfishers, but always had to let them go because in that lean year I was not able to take mealworms with me and found that the birds would not eat raw meat though they would, of course, eat grasshoppers, a food I could not hope to supply on the homeward voyage.

At length, however, I was brought a black-billed fledgling, which readily took small pieces of raw meat offered to it on a pair of tweezers. Before leaving I dried a small mepachrine bottle full of grasshoppers for use on the voyage, for I feared that without this roughage and means of making pellets the little bird would not survive the fifteen days' voyage; but the first night while the ship was still at Tiko and swarming with natives engaged in loading bananas, the bottle disappeared having, I believe, been stolen by one of them who thought it contained quinine. His dismay could not have been greater than mine for the ship was not, as we had been told, infested with cockroaches, but the Kingfisher did not mind the meat diet and was safely landed here.

At Kumba, where we were delayed for several weeks on our way back to the coast owing to shipping difficulties, suitable nesting places for these Kingfishers were evidently scarce, for a pair made a burrow in the side of the pit that was our primitive lavatory. This undesirable residence was completed in a very few days, and when we came away the mother was sitting.

Two of the Blue-breasted were brought back; these birds seemed to have regular feeding rounds, and one which came every evening just before dusk was easily caught in a trap baited with a grasshopper and placed near its accustomed perch.

After a few days' stay in Victoria we left for Mamfe, some 180 miles to the northward, a journey which took two days by lorry over a fair road, part of which had been made only since the war. The road winds through quite mountainous country, but it was not often, owing to the dense jungle, that one could catch a glimpse of the scenery. Mamfe itself is in quite open country, standing some 150 feet above the Cross River and having a well-kept golf course on which some Yellow Wagtails and a few Whinchats were seen.

The river was, of course, low at that time of the year, but it was evident from the great sandbanks on either side what a torrent must rush down there in the rains.

A conspicuous bird on the sandbanks was the White-headed Plover (*Xiphidiopterus albiceps*), a rather tame bird which could be approached to within 80 yards. One afternoon we went by canoe up the river between the high rocky sides of the Mainyu Gorge, and on the roof of a small cave saw the mud nests of presumably two species of Martin or Swallow, one having a tubular entrance and the other being oval. There were some Sandbank Pratincoles (*Glareola cinerea*), some young Long-tailed Cormorants (*Phalacrocorax a. africanus*), and a pair of Pied Kingfishers (*Ceryle r. rudis*).

On the way back three of a party of five Hippopotami swam towards us, but their timidity overcame their curiosity and they did not venture very near.

The next day, from the top of the gorge I watched a Giant Kingfisher (*Ceryle m. maxima*). It dived with a great splash but failed to get a fish. While we were at Mamfe, Dr. Serle, whose work on the British Cameroon birds will be known to many, kindly sent me two nestlings of this species. They thrived and grew rapidly while I was able to provide them with fish or raw meat, but later, at the small village of Bakebe, 25 miles from Mamfe, the fish supply was uncertain and there came a day when the only food for the birds was the flesh of Muscovy Duck, which made them both ill and caused the death of one; the other died two weeks later when the only available food for a day was tadpoles. It was a great disappointment to lose these two birds which would have been so easy to rear under ordinary conditions with a regular supply of small fish. From the top of the gorge I also saw two Blue Plantain-eaters (*Corythaëola cristata*) and later saw others (as many as seven together), and although they were nesting early in the year no native ever found a nest for me. As these birds seemed always to live in the highest trees there was little hope of catching any.

Near the Rest House at Mamfe, where we stayed for a few days, there grew a Bombax tree which was in bloom, and as the leaves had not yet unfolded it was easy to see the birds which came presumably to feed on the insects which the flowers attracted, for there seemed little nectar in them. It was difficult to get a good view of the birds for they were so constantly on the move, but some were obviously Sunbirds—one or more of the brown-bodied ones of the genus *Cinnyris* and others appeared to be the Superb (*C. s. superbus*).

Each day at almost precisely noon a pair and a young male Olive-bellied Sunbirds (*C. chloropygius luhderi*) came in search of insects to a hibiscus hedge which grew close by the Rest House.

The birds seemed to have a regular round for they never came before or after noon, and at another place I saw a pair only in the early morning coming to feed on the newly-opened flowers of a creeper and never coming, so far as I knew, later in the day.

I brought back a nest of this species, a tiny pendulous structure.

The native boys have two methods of catching birds : one is by means of bird-lime made from the white sap of a kind of liana and the other by the use of an ingeniously contrived snare made from a thin springy stick and a noose made from fine strips of banana bark plaited together. The noose is laid over a thin stick on which the bird alights in order to reach the bait, which is generally palm-nuts, termites, flowers, or a small bunch of bright red berries, and in so doing springs the trap and is caught by the legs.

I fixed a few of the fallen Bombax flowers (which are rather tulip-like in shape and of a bright salmon pink) on the hibiscus hedge and put a little honey in them. The Sunbirds quickly found this and drank from the flowers but were not induced to stay any longer or to come more often. A boy made me one of the noose traps and I took away all but one of the flowers which was placed near the fateful perch.

It was difficult to set the trap lightly enough for such small birds, but evidently it was, for the hen was soon caught. The others did not return for some time, but eventually they did but were very suspicious and would not go near the trap, and during the next two days that we were there they did not come back. The Bombax tree itself was not a happy hunting ground for the thinner branches were covered with strong cruel thorns.

I went back to Bakebe, on the Victoria side of Mamfe, which seemed a good place for birds, while Durrell went to Eshobi, a village at which Sanderson in 1932 made a part of a great collection of mammal and reptile specimens for the British Museum, including the Angwantibo (*Arctocebus calabarensis*), of which we eventually obtained three, one of them being the first to be exhibited in the London Zoo.

The jungle round about Bakebe was full of birds ; they could be heard everywhere though it was always difficult to see more than a few and the best chance of doing so was by waiting in the beds of dried up streams and watching as they came to drink or to bathe in the few remaining pools.

Some came to bathe just before dusk, and though it was difficult in the dim light to identify them one could be recognized as the Gaboon Forest Robin (*Stiphrornis erythrothorax gabonensis*). This subspecies, of which I brought two, was not uncommon, but I never saw the yellow-bellied one (*S. c. xanthogaster*).

Another fairly common bird was the Blue-shouldered Robin Chat (*Cossypha cyanocampter*), but another, the White-browed (*C. polioptera nigriceps*) was quite rare and I saw only three, two of them already dead when brought to me and the third I kept for some four months.

A brown Babbler which I never identified to my satisfaction but which seemed to be *Phyllanthus atripennis haynesi*, was an apparently rare bird. I obtained one and some weeks later a boy brought another, and the joy of the first on seeing another of its own kind

was quite touching to witness. I put them together and they sat side by side murmuring with every sign of contentment. Both died on the voyage and both were affected by some trematode-like parasite, not in the intestines but living in the body cavity.

Only once did I see them in the forest when a party of about six passed by hunting for food and calling to one another as they went, as is their roving habit.

A boy once brought me a Mountain Wagtail (*Motacilla clara*), together with its nest containing a very young family, and I felt so conscience-stricken about it that I let the mother go, for one could not trust the natives to replace a nest and liberate the parent near by. Bates, who seems to have been ruthless, writes of this dainty bird: "It is a real water-sprite, living in the spray and making its keen voice heard above the din of waterfalls, often frustrating the bird-collector's murderous designs (to his secret contentment, however) by keeping itself over places from which it could never be recovered if shot."

The White-tailed Ekwalat (*Neocossyphus p. poensis*) was not uncommon nor was the Fire-crest Alethe (*Alethe c. castanea*).

An interesting variety of birds was caught by the native boys in snares baited with the bright red berries of a small tree which grows commonly about the villages. The berries hang in clusters and are encased in a green fleshy husk which drops off as they ripen. A small amount of rather tasteless flesh surrounds the large seed which is regurgitated by the birds. At least three species of Sunbirds eat these berries—the Blue-throated Brown (*Cinnyris cyanolæmus*), the Collared (*Anthreptes collaris hypodila*), and the Grey-chinned (*A. tephrolæma*) and three species of Tinker-birds—the Speckled (*Pogoniulus scolopaceus flavisquamatus*), the Red-rumped (*P. erythronotus*), and the Least (*P. s. subsulphureus*). This last is very like the Lemon-rumped, which I never saw, but decidedly smaller.

The Barbets caught in this way were the Bristle-nosed (*Gymnobucco peli*), the Yellow-spotted (*Buccanodon duchaillui*), and the Yellow-billed (*Trachylæmus p. purpuratus*) and of the Bulbuls, the Gaboon, the Spotted (*Ixonotus guttatus*), the Icterine (*Phyllastrephus i. icterinus*), and *Pyrhrurus simplex*. I was once brought one of the curious Bristle-necks (*Trichophorus chloronotus*) which had been caught in a trap baited with these berries. Many birds feed on the oily husk of the palm-nuts and are caught in snares baited with them. The Blue-billed Malimbus, (*Malimbus n. nitens*), normally insectivorous, is one. I was brought several at different times, but though there was never any difficulty in getting them to eat quantities of grasshoppers, the oily larvæ of the palm weevil, palm-nut husk, and fruit, all became thin and none lived more than a fortnight.

The Negro Finches were others caught by this bait, and the plumage

of *Nigrita canicapilla* is sometimes stained yellow by the palm oil. I brought back one of these and one *N. bicolor brunescens* and was once brought a *N. l. luteifrons* which unfortunately had a broken leg. Orange-cheeked and Black-headed Waxbills and sometimes Bronze Manikins are also caught by this means.

Among the birds said by the natives to have been caught with termites as the bait were Latham's Francolin (*Francolinus l. lathamii*), of which I was brought several, all of them with badly injured legs caused by their struggles in the snare and from which none recovered. Tambourine Doves (*Tympanistria t. fraseri*), the Blue-spotted and a single *Aplopelia simplex plumescens* were also said to have been caught in this way.

Another method is to catch sleeping birds. Native hunters sometimes go out at night armed with a primitive gun and one having fixed on his head an old acetylene miner's lamp procured, no doubt, from the coal-mining district near Port Harcourt.

The game is any suitable animal and the method is sheer murder for Duiker and Antelope which generally run to the nearest cover where they stand and look towards the light, so that the hunter has only to shoot at the retinal reflection of their eyes.

Not all birds sleep soundly enough to be caught in this way and the ones I was brought—generally late the next morning—were the Forest Robins, Blue-shouldered Robin Chats, and Pigmy Kingfishers—and once two lovely Wattle-eyes, the Red-cheeked (*Diaphorophia b. blissetti*) with turquoise blue wattles, but alas, they were far gone and did not survive.

One morning I was brought a Pitta (*Pitta angolensis pulih*) which the hunter said he had caught during the night, but it had a broken wing. The catcher must, of course, remain behind the light and approach the bird quietly.

I went out twice, and on the first occasion caught a Flycatcher (*Tchitrea melampyra batesi*) which was roosting on the end of a thin dead twig and was easily caught with a butterfly net. I had this pretty bird for about three months. On the second excursion nothing was seen and on neither occasion was an animal seen though some were heard.

The natives had no conception of handling birds with care, often bringing them some hours after they had been caught. Whenever an obviously dying bird was pointed out to the bringer he always insisted that it would not die. Once a woman brought a Guinea-fowl in a primitive cage, and while she was assuring me that it could not possibly die it expired on the floor. Quite unabashed, she picked up the bird and walked off to sell it to the cook. I brought three Guinea-fowl; they were *Guttera edouardi sclateri* and all had, I believe, been caught at night while sitting on their eggs. Only once did I hear the

wild and (as Guinea-fowl go) not unmusical cry of this handsome bird in the forest.

The only Parrots seen were the Grey and these generally at dawn or dusk when they were flying swiftly over, presumably to or from their roosting places. It is sometimes almost dark when one hears their alternate squawk and whistle, and once I heard two flying over in the middle of the night.

One sometimes sees a few feeding in some tree of which the fruits or seeds are ripe, and then they remain very silent, but can be located by the shower of discarded food, etc., falling to the ground. These birds must eat a great variety of food in the wild state. Hornbills are quite often seen : the Yellow-casque (*Ceratogymna elata*), the White-crested (*Tropicranus albocristatus cassini*), and the Laughing (*Bycanistes s. sharpii*) are common ones.

I brought several, all of them young and presumably caught before they could fly well after leaving the nest, including one which I thought to be the Brown-cheeked Miam (*Bycanistes cylindricus*), but I have not seen the bird since, if still living, it has acquired the adult plumage.

I once found a Hornbill's nest some 40 feet from the ground. The sealed up hole in the tree was so well done as to be almost impossible to detect, and it was only the clamour made by the mother or young one when the male came with food that drew my attention to it. Judging the young one to be almost ready to come out, a village man with a reputation as a climber of trees was negotiated with, and thinking that the vision of capturing the mother and several young ones with the appropriate rich reward would sustain him in the course of his climb, no mention was made of the fact that he would find no more than the mother and one young bird. The next day he set off with a boy to guide him to the place, but was soon back to say that the tree was "past" him.

I saw two species of Whydahs : the Pin-tailed on a few occasions, always in the company of Orange-cheeked Waxbills and never more than two together. I once saw a male in full plumage performing its display flight, a dancing gnat-like flight, though its mate was not to be seen anywhere near. Twice I saw a single male of one or other of the yellow-shouldered ones flying in a rather laboured way across an open space, a striking target, one would think for a bird of prey.

When Durrell returned from Eshobi he brought what were perhaps the most interesting birds I brought back—three of the White-spotted Pigmy Rails (*Sarothrura pulchra zenkeri*).

These delightful little birds soon became fairly tame ; I used to put crumbled decayed palm fibre on the tray of their cage for the sake of their feet and immediately they carried some of it into a corner and made a little nest or platform with it.

This performance went on every morning, and I wonder whether

it is their habit to make roosting platforms in the wild state. I did not catch any of these with limed mid-ribs of palm leaves placed around the pools in a dried up stream at Bakebe but saw footmarks of what might have been this bird and caught one of the Grey-throated Rails (*Gallinallus ocellus batesi*); also a Black Crake (*Limnocorax flavirostra*) and a White-bellied Kingfisher (*Alcedo leucogaster batesi*) which is largely a tadpole eater.

A little later Durrell went to the mountain of N'dali, some six miles from Bakebe. It was a wild uninhabited place and slightly sacred as we learned later when the local chiefs made a protest to the Divisional Officer. With fieldglasses it was easy to see its most precipitous side towering above the surrounding forest and I wondered whether the rocky base might be a home for Picathartes, though from Bates it seemed that this place was too far inland, but from what is now known it is a likely habitat and I regret never having time to go there.

The only interesting birds sent down from this mountain were three Ground Thrushes (*Geokichla camerunensis*), all of which I unluckily lost from aspergillosis.

I was brought a Red-necked Buzzard (*Buteo auguralis*), the only one I saw, by a native who said he found it with its feet entangled in long grass. He asked five pounds for it, but as I did not want it, I offered two shillings. He pondered this dismal proposition for more than an hour, but finally accepted. The only possible value of a bird to these people is that of food, so the commonest Francolin is worth more to them than a Picathartes.

Their normal diet is so deficient in animal protein that they eat the smallest birds, and the only things I have ever seen them liberate were bats and chameleons.

I was also brought one of the lovely pale grey Lizard Buzzards (*Kaupifalco m. monogrammicus*) and a young Black Sparrow Hawk (*Accipiter melanoleucus temmincki*) which the bringer said he caught when it was attacking his chickens. Two species of the local grasshoppers, one black and yellow and the other, a much larger one, black, yellow, and dull emerald green were evidently unpalatable to birds. The larger one was very sluggish in its movements as if aware of its immunity. No bird would touch them and I once offered some to one of the local chickens which will eat almost anything, but even it turned aside.

One night at Bakebe we were roused by the night-watchman who, by some lucky chance, was awake at his post. An invasion of driver ants, which we had always dreaded, was taking place, and one column was already coming into the hut while the main one was passing along near the front of it. We hastily poured down disinfectant around the crates and cages and then with the help of the staff set about attacking the ants outside with burning torches of dry palm fronds. It was a

long struggle and we were well bitten, but we finally routed the ants and saved our specimens. It was still dark when the battle came to an end, and while we were waiting for some well-earned tea a Blue-shouldered Robin Chat sang a few soft sweet notes such as I had sometimes before heard it do during the night. The whole experience was remindful of the air-raids of war-time nights, but no "Raiders Passed" signal was sweeter music than that of the Robin Chat.

The driver ants sometimes hunt by day, and when a column is crossing a path the soldiers stand on either side of it with their great jaws pointing upwards but in more open country they generally spread out in search of food and can sometimes be located by the presence of the birds which gather round in the hope of catching the unhappy insects fleeing for their lives. There is something uncanny about these ants and the realization that if for any reason one could not move out of the way of this shiny black and swiftly moving horde one would be eaten alive.

After a time we moved down to Kumba, where a common bird was the Kurrichane Thrush (*Turdus libonyanus saturatus*), which sang a beautiful song not unlike that of the Song Thrush.

The bird-life here was very like that of the forest further inland, though I was brought three new Sunbirds—the Superb, the Cheerick (*Cinnyris verticalis cyanocephalus*), and the Green-throated (*C. a. angolensis*); also a Narrow-tailed Starling (*Poeoptera l. lugubris*) which was almost dead.

Two species of Woodpecker were the only ones seen. One of them, the Pigmy (*Verrauxia africana*), was brought from Eshobi and lived for two months on tree termites, its natural food, but it became rather fat and died suddenly. The other was a dead Green-backed Barred (*Campethera p. permista*), a very pretty bird.

From the crater lake of Barombi I was brought two Kingfishers—a Pied and a Shining Blue (*Alcedo quadribrachys guentheri*), but evidently they were bad travellers, for they were ill on arrival and did not survive for more than a few days, though an African Little Grebe (*Podiceps ruficollis capensis*) which came with them lived happily for several weeks until I liberated it in a nearby stream, for it was very like the well-known Little Grebe and of no especial interest.

A nice bird brought to me at Kumba was a Black-throated Coucal (*Centropus l. leucogaster*), together with one small white egg which, so the bringer said, was being incubated by the bird when he caught it. This Coucal became quite tame and I found it to be fond of snails, which helped to solve the feeding problem here where mice and other foods were not easy to get and the bird did not like whale meat. The Spectacled Flycatcher (*Platysteira c. cyanea*) was not uncommon about the villages; I kept one for about six weeks, but let it go when it began to lose condition.

I also kept a Black-crowned Bee-eater on meat and grasshoppers for nearly three months, liberating it soon after the others had gone northwards on migration, for it seemed unlikely that it would survive much longer and there must be little hope of keeping such a bird for any length of time in a small cage.

The Chestnut-crowned Bush Shrike (*Lanarius luhderi*) was another of the victims of aspergillosis which caused me some losses before I was able to get some potassium iodide, which seemed an effective preventive of this disease.

Touracos were very rarely seen but often heard, the well-known call being a stirring sound in the early morning mist of the forest valleys.

A pair of the pretty Grey-headed Sparrows (*Passer g. griseus*) lived round about our hut at Kumba and seemed interested in the eaves of it as if they were looking for a nesting place.

The rains had already started before we were at last able to leave, and life during this season must often be difficult for the small birds, particularly those which are nesting, for the heavy rain is sometimes accompanied by cold winds of gale force. With the realization that I had seen a very few of the many Cameroon birds, I have often wished to go back, though not without much better equipment, prepared insectile foods in sealed tins, and the humble yet almost indispensable mealworm.

* * *

BREEDING OF AUSTRALIAN PARRAKEETS

By T. R. HOLMES WATKINS

Members interested in the Australian parrakeets doubtless saw the Secretary's note of my importation of three pairs of Splendids in the early spring of last year.

A combination of circumstances prevented me giving the birds outdoor accommodation until almost midsummer. A young pair did not nest; one adult hen was lost when close to lay, probably with pneumonia, but the other pair successfully reared two broods of four each, six hens and two cocks.

As the recent relaxation of the importation ban should result in the reappearance here of these birds it may be of interest to record:—

(i) The incubation period is eighteen days. No doubt the period is similar to that of other members of the genus, of which I have but small experience, but it is rather surprising that it should be as long as that of so much larger birds, for example the Pennant.

(ii) When off the nest the hen was frequently seen to tear off

strips of green leaf and tuck them behind the wings and in the rump feathers, after the manner of lovebirds. I do not think any ever reached the nest, they fell out immediately the hen flew.

(iii) The second brood, it was getting late in the season but the hen was adamant and I weak, was reared in a log under cover. The base of the nest could be kept damp and the old birds fed almost exclusively on germinated spray millet, chickweed, and quite amazing quantities of persicaria on the head. Probably it was a combination of these two facts that saved the brood, and though it is true that the smallest was not completely strong and was destroyed, the remaining three were very satisfying.

When the birds arrived it was noticed that one hen had a slight conjunctivitis. As time went on it did not improve and was presumably contagious, as a second hen was beginning to show similar signs at the time the birds were turned out. In the full sunlight of an outdoor aviary it was immediately obvious that serious trouble existed and both birds had to be caught up. Treatment with sulphalamide solution broken down to 5 per cent and standard (6 per cent) sulphacetamide sodium ointment was carried on for about ten days, when the eyes were perfectly healthy and normal. There has been no recurrence of the complaint. It had been intended to treat the eyes twice daily, but this became erratic if I was not available, and a day may even have passed without any application.

In breeding the larger Australian parrakeets the almost invariable experience is to have more cocks than hens to a brood. Most recorded breeding notes on Grass Parrakeets show an opposite ratio. Does this indicate that the mortality of the hens is even greater in the wild than with other parrakeets?

* * *

COUNCIL MEETING.

A Council Meeting was held on 12th March, 1952, in the Council Room, Zoological Society of London.

There were the following appointments :—

Elected to Council.—The Right Hon. the Viscount Chaplin, F. Terry Jones.

Elected Honorary Life Member.—Miss E. M. Hopkinson.

Council decided that in future Honorary Members of the Society should be styled Honorary Fellows.

ARTHUR A. PRESTWICH,
Hon. Secretary.

COMPARATIVE STUDIES ON THE BEHAVIOUR OF ANATINÆ

By Dr. KONRAD LORENZ (Dulmen in Westfalen, Germany)

Reprinted by kind permission from *Journal für Ornithologie*, 1941.
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Translated by Dr. C. H. D. Clarke, Division of Fish and Wildlife, Ontario, Canada

(Continued from p. 17)

VIII. THE CHILIAN PINTAIL

Dafila spinicauda

A. GENERAL.

In spite of certain similarities this little Pintail, whose male has no breeding plumage, shows less resemblance to our native Pintail than do certain species of *Anas*, which lack breeding plumage, to our Mallard. Not only the individual actions but the whole general behaviour of this little duck is peculiarly temperamental, even fiery. In the behaviour of the bird I could find nothing indicative of near relationship to the Yellow-billed Teal, *Nettion flavirostre*, whose colouring is very similar.

B. THE NON-SEXUAL REACTIONS AND NOTES.

These correspond exactly to those of *D. acuta*, except that the drake of *D. spinicauda* has a greater tendency to leave off the "geeeee-geeeee" in the call note and to utter the whistle only, a thing that Pintails do only when especially highly excited.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

They are exactly like those of the Pintail, the constant creaking "inciting" that one often hears being, to my ears, exactly alike in both species. On the other hand, the "decrecendo-call" has more syllables and is much more like that of the Mallard than that of *D. acuta*. It sounds very much like that of *Poecilonetta bahamensis*.

I can say nothing about the gestures-of-repulsion because my birds never bred. Perhaps it and the dominance-reaction of the drake are lacking in the species.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of Display.*

The drakes display almost all year round and for that purpose gather in little societies which, however, are different from those of the Mallard and Pintail in that the birds do not remain still for a

moment but keep up a hasty and restless swimming past each other all mixed up, in which, again in contrast to the species we have described before, the ducks take part as well as the drakes.

2. *Drinking and Mock-preening.*

I have seen both of these only very occasionally. Neither of these two performances can play a great role on account of the haste and restlessness of the social-play as described.

3. *Introductory Shaking.*

For the same reason this movement is also very limited and is performed only briefly, and a few times, before the real display begins.

4. *Burping.*

Drakes, swimming around quickly, burp at very short intervals.

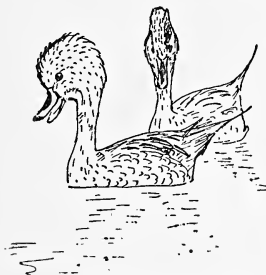


FIG. 24.—The burp of the Chilean Pintail, *Dafila spinicauda*. Notice the disk "set" of the head feathers and compare with Figs. 2, 15, 20, 34, 46, and 50.

The greater the intensity, the quicker the succession, and the more the "geeegeeeeee" gives place to the whistling. When my three drakes were really in the mood for it anyone knowing only the Mallard display and trying to guess their number from the frequency of their whistles would have said that there were ten times as many drakes as I actually possessed (Fig. 24).

5. *The Grunt-whistle.*

This, too, follows in quick succession, distributed irregularly between the more frequent burping performances. Although both these behaviours are exactly like those of *D. acuta* the general impression of the social play of *D. spinicauda* is quite different.

6. *Head-up-tail-up.*

This is entirely lacking, as well as the turning of the back of the head, which in *D. acuta* is associated with it. The special differentiation of the head feathers of *D. spinicauda* corresponds to this vital difference. The feathers on the temples and the upper side of the head are greatly lengthened and form a hood in the disk-set linked with burping, described above. This, together with the "snub-nose" and the bill markings, give this little duck a peculiar and, in spite of its plainness, a charming appearance (Fig. 29).

7. *Post-coital Play and Method of Fighting.*

These correspond fully to those of *D. acuta*, except that *D. spinicauda* has a still greater tendency towards striking with the wing. This is,

however, a peculiarity of many species of smaller ducks. Perhaps there is some correlation between the sensitiveness of the feathers and the fact that smaller birds are very generally less inclined to fight at close quarters than larger forms, at least in those which are closely enough related to permit comparison.

IX. THE BAHAMA DUCK

Poecilonetta bahamensis (L)

A. GENERAL.

Unlike the females of all the species hitherto described, the Bahama Duck is not greyish brown and cryptically coloured, but shows very nearly the same patterning and colouring as the drake, with handsome rust-red plumage, white cheeks, and blue and red bill, even the pointed and elongated scapulars and wing coverts are like those of the drake. The drakes' social display has a certain air of "solemnity" because the birds swim about very little and always remain stationary from the initial head-shake to the commencement of their only display movement. This is a remarkable contrast to the other Pintails, especially to *D. spinicauda* which, in other respects, is very similar. In one point *P. bahamensis* is the most differentiated of the Pintail group, that is in the unique and "exaggerated" form of its head-up-tail-up, which, incidentally, is its only display movement.

B. THE NON-SEXUAL REACTIONS AND NOTES.

The sexes differ less than those of the two *Dafila* species. The male has still a soft "g'e, g'e" which can be heard only very near by and which, although there is hardly even a hint of a second syllable, surely corresponds to the two-syllabled conversation-call of ducklings and of both sexes of the Mallard. The female, in all its reactions and calls, is generally like the female of the species of *Dafila*. It is interesting that the female's voice is still further differentiated by the predominance of "rrrr" sounds. Just as in the species of *Dafila* the inciting female's successive "queg" notes have become a connected rolling "arrrr" in the Bahama Duck, this is also the case in the one-syllabled "go-away" call. Whereas in *Dafila* this consists of separated "queg" sounds, in *P. bahamensis* it is a soft, but always continuous, rolling.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting*.

The voice of the Bahama Duck is higher than that of the female of either species of Pintail but it is, as we have said, more given to rolling "rrrr" sounds. The inciting is entirely like that of the Pintails but perhaps more continuously rolling.

2. *Gesture of Repulsion.*

This is exactly like that of the Pintails and, as with *D. acuta*, very easily released, as I know full well, although my *P. bahamensis* have never bred, and therefore the proper physiological reasons for this did not exist. The upward bending of the upper mandible is very striking because of its bright colour, and so also, because of their drake-like stretched-out pointed form, is the ruffling of the feathers.

3. *The Decrescendo Call.*

This is nearly the same as that of *D. spinicauda* so far as the number of syllables is concerned but compared with the distinctive notes of this species is very harsh, perhaps even more peculiar and striking than that of *D. acuta*.

4. *Gasping.*

The interest of the female of *P. bahamensis* in the social display of the drakes is very great. The gasping reaction that Mallards use so rarely that I hesitate to include it in the list of their normal reactions, is, in the Bahama Duck, one of the usual courtship notes of the duck. It is ordinarily uttered at the moment when drakes perform their almost voiceless display. It is sharper and more audible than in the Mallard or domestic duck, but it is almost like them in rhythm, a three-syllabled sharp gasping "chaechaechae". This participation of the ducks in the social-play of the drakes reminds one very much of the Garganey Teals, and one would take it as a coincidence only were it not that the African Red-billed Duck, the female of which, unfortunately, I do not know, forms such a very clear connecting link between the Bahama Duck and the true Garganeys. In the face of this fact the gasping of the Bahama Duck holds special taxonomic significance.

5. *Bridling and Nod-Swimming.*

These are lacking altogether in the social display of the drakes.

6. *The Prelude to Mating.*

This corresponds exactly to that of the ducks we have discussed already.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *Mock-Preening and Drinking.*

These do exist but are little differentiated. It would be difficult to prove to a sceptic that both these movements were not accidentally performed autochthonous manifestations of corresponding instincts.

2. *The Introductory Shaking.*

Like the Mallard drake, the Bahama drake needs a relatively long time of self-stimulation, through introductory shaking, in order to work himself up to the performance of his highly differentiated display. The shaking is performed only when drakes have solemnly drawn close to each other and are standing still. If the duck they are courting swims away from them they are forced to change the position of their social-play. Then they have to begin again to shake ceremoniously before they can perform their pretty head-up-tail-up. This ceremony is a sharp contrast to the Pintails, especially *D. spinicauda*. The introductory shaking often lifts the drake right out of the water, as is the case in the Mallard. During such hard shaking those who know ducks would expect the grunt-whistle in the course of the stimulus, as at this level of intensity the behaviour already approaches it in its outward form. One thinks that the little drake will have to grunt-whistle the next moment. Instead, however, this highly intensive shaking is always followed by the head-up-tail-up. A burp is only possible after less intensive preparatory shaking.

3. *Burping.*

The burping behaviour is entirely like that of the various species of *Dafila*. The sound is softer and more like a song-bird than the latter and is perhaps expressed in letters better by "hiiiiiii" than "geeee-geeee". A whistle is audible only at high intensity levels. As with the Pintail, only perhaps more decidedly, the "burp" is used by the Bahama drake for the personal courtship of a definite female, frequently alternating with the "head-turning".

4. *Head-up-tail-up.*

After highly intensive shaking, as described, the drake suddenly lifts up his tail and places it so far forward that it is over his head, which has been drawn in and pressed upon the front part of his back, almost horizontal. At the same time the elbows as well as the back and rump feathers remain pressed tight. The first, however, have to move right over to one side to give room for the tail, and always both to the same side, so that the tail is never brought between the wings (see Fig. 25). As a result the bright rust-coloured under-tail-coverts, which have been well ruffled in this action, are very striking. The drake stays



FIG. 25.—The head-up-tail-up of the drake Bahama Pintail, *Poecilonetta bahamensis*. The only, and highly differentiated courtship display of the species. The extreme position is held for some seconds by paddling. The bright under-tail-coverts are very striking.

at the peak of the act for about three-quarters of a second, during which he keeps this tipped forward position by stamping backwards with his oars. Afterwards he sinks back into a normal position; there follows a "burp", like that which *D. acuta* uses in the corresponding state, usually pointing the bill directly at the female. In contrast to the drakes of the Mallard, Pintail, and Chestnut Duck, the Bahama drake, in this over-emphasized "head-up-

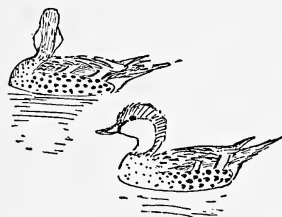


FIG. 26.—The Bahama Pintail drake turning the back of the head. Compare Figs. 14 and 23.

tail-up", utters a very soft "i-hieh, i-hieh, i-hieh", that in rhythm reminds one very much of the "gasping" of the Mallard drake and the female *P. bahamensis*. The "i-hieh" in the middle is replaced by a whistle at high intensities.

5. *The Turning of the back of the head.*

This is entirely similar to that of *D. acuta* (above). Seen from the back the white cheeks are very striking. These do not protrude so much in swimming with the head drawn in without previous display, and it seems to me that the feathers of the cheeks become more ruffled than those of the rest of the head (Fig. 26).

6. *The Combat of the Drakes.*

This begins by taking the crouching position, characteristic of *D. acuta*, with indrawn and ruffled head. This, from a reaction arising from an intention movement of grasping the opponent, has departed so far from its phylogenetic origin that it never, in the Bahama drake, proceeds to a grasping of the opponent with the bill. Rather, the bill is opened very wide in a threatening manner only, in which its striking red-blue inside becomes significant. In this position the drake chases his opponent, swimming furiously just beyond, so that both opponents are alongside each other, whereupon in full sail they treat each other to whole broadsides of blows with the wing joints, which sound like the firing of miniature machine guns. This method of fighting corresponds entirely to that of *Lampronessa*. It is interesting to note that in *Aix* this action has been reduced to a display ceremony which no longer ends in victory or even in intimidation of the enemy. In *P. bahamensis*, however, it is a fully effective mechanism, and the little drakes, shooting ahead like torpedo-boats, often succeed in putting much larger enemies to flight.

7. *The Post-coital Play*

This consists of bridling, like that of the Mallard, but without sub-

sequent nod-swimming, instead of which it is followed by repeated "burping", a little less intense than that of *D. acuta*.

X. THE AFRICAN RED-BILLED DUCK

Poecilonetta erythrorhyncha (Vieillot)

A. GENERAL.

Unfortunately I know only one drake of this species, though for many years and in the best of health. The African Red-billed Duck is not nearly as closely related to the Bahama Duck as one would gather from an outward examination of the plumage. The marking of the white cheeks with their distinctive shading into the lower side of the head, as well as the dark cap, reminds one of *Querquedula versicolor*. As I have verified from Heinroth's splendid collection, the bone-drum stands exactly midway between that of *P. bahamensis* and that of the true Garganey Teals. The shape and marking of the back feathers lie midway between the Pintail and the Garganey Teal.

B. THE NON-SEXUAL REACTIONS AND NOTES.

Apart from his one display-call the drake seems to be rather silent. He has, to be sure, a conversation-call but it is so soft that one can hardly hear it in the open and if the specimen is not particularly tame. I cannot say whether it has one or two syllables. The "burp" acts as a lure-call, as it does with the Pintail group.

C. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *Drinking and Mock-Preening.*

I have, unfortunately, not observed these reactions. Certainly neither is very striking nor, as in the Garganey drakes, especially differentiated.

2. *The Introductory Shaking.*

This is very distinct but not so ritualized as in *P. bahamensis*. "Burping" usually follows immediately.

3. *Burping.*

This is the only behaviour of the social-play which my drake exhibits. However, as he displays intensively in the company of the Bahama drakes I do not think that this is caused by his being in captivity. The action is exactly like that of *Dafila* and *P. bahamensis* and, in addition, the tone that he utters is very similar to that of these species. At the same time, because of the unique detachment of the individual vibrations, he reminds one clearly of the wood-creaking note of the Garganey drake. In contrast to the Pintail and Bahama Duck, and again conforming with the Garganey, the note is not uttered both as his head goes up and down but only during one of these motions. While the Garganey drake utters its call while its head is moving

downwards, the African Red-bill utters his while he is thrusting his head up, after which he lowers it in silence. The Red-bill lacks the whistle, as do the Garganey drakes.

XI. THE GARGANEY TEAL

Querquedula querquedula (L)

A. GENERAL.

Without any doubt the Garganey Teal differs more from any of the ducks so far discussed than these do from each other. On the other hand, *Q. versicolor*, which I unfortunately do not know, is in its tracheal enlargement and many other characters a Garganey, but in its head markings, bill colouring, and in other ways it shows clear relationships with the African Red-billed Duck and the Bahama Duck and is linked with these species and therefore with the Pintail group. On the other hand, however, through *Q. cyanoptera* and *Spatula platalea* an equally clear family relationship with the Shoveler group is apparent which, as we shall see, is also indicated in the reaction-inventory of *Q. querquedula*.

B. THE NON-SEXUAL REACTIONS AND NOTES.

As a conversation note the drake has a short one-syllable "geg . . . geg . . . geg" which he utters in the same situations as the Mallard utters his "raebraeb", especially when annoyed, as for example, when two drakes cannot get at each other's feathers through a fence. The female's lure and conversation calls are more like those of the Mallard than are the corresponding notes of female *Dafila* and *Poecilonetta*, which all differ by their rasping quality. The duck is really sparing with her calls. The mood for going or flying away is expressed just as with the Mallard duck, but the tendency to vertical "pumping" of the head at any general excitement is more pronounced. In this *Querquedula* reminds one very much of the Shoveler.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting by the Duck.*

This differs from that of the Mallard and Pintail group, as well as from the Chestnut-breasted and Common Teals in that it lacks the striking succession of rising single notes sounding annoyed and querulous. Instead of this a one-syllabled disjointed "gaeg" sound is uttered at every "inciting" movement. In addition one "pumping" movement is associated with every movement and inciting note, as though the duck were going to fly away. *In both points the Garganey resembles the Shoveler.* Together with *Q. discors* and *Q. cyanoptera*, the Garganey forms a connecting link between the latter and the other surface-feeding ducks in that the females of these three

species perform, between pumping movements, a typical inciting movement, linked with an especially distinct stretching of the head towards the "enemy", backwards over the shoulder, which the Shoveler never does.

2. *The Decrescendo Call.*

This is very rare. For a long time I thought that it was lacking in this species. It is composed of two, at most three, syllables, the last syllables sounding as if they were swallowed. The rising and dying down follow so quickly that a peculiar roaring note arises, which again reminds one of the Shoveler.

3. *The Backwards-Stretch.*

Curiously enough, the female Garganey also has at its disposal the most striking display-act of the male, in which the head is stretched back with its upper side against the back and then brought back to its normal position in a great bent-out bow. While doing this the duck utters a "quaeh-geg" which is stressed on the first syllable. The duck utters this note when she is participating especially intensively in the drakes' social play, and is therefore in somewhat the same mood as that in which the Bahama Duck utters her "chae-chae-chae". Like the nod-swimming of the Mallard and Chestnut-breasted Teal, this reaction is obviously "aretic", i.e. a characteristic taken over from the male sex.

4. *The Introduction to Mating.*

I have never seen this, but it is almost certainly like that of the species already described, judging by the Garganey's great tendency to "pumping".

5. *The Post-coital Play.*

This I have also never seen, and I should be very glad to get reliable information on this subject.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The Introductory Shaking, Drinking, and Mock-preening.*

These play an outstanding role in the Garganey drake. Thus, drinking takes place not only as an independent introduction to the social-play but also, as part of an established component of certain forms of display. On the other hand, mock-preening is used a great deal in the introductory part of the display and is repeated in many displays as often as the introductory shaking. In contrast to the drakes of most other surface-feeding ducks, Garganey drakes preen the outer

side of the wing, which shows off the bright blue wing coverts very strikingly (see above and Fig. 28). Even during the introductory part of the display the drakes mill around (Fig. 27) which, with the continual shaking and preening, gives the impression of feverish nervousness.

2. *Wing-beating.*

Of all the species of duck that I know, the Garganey is the only one in which Heinroth's so-called "wing-beating" has become part of display. As the excitement of the social display rises, one of the drakes will rear up in the water and with increasing frequency beat his wings in a peculiarly short and accentuated manner. This beating of the wings has, doubtless, like other substitute "comfort activities" (as Tinbergen would say) been developed from the original instinctive



FIG. 27.



FIG. 28.

FIG. 27.—The position taken at the beginning of the social-play of the Garganey Teal, *Querquedula querquedula* L. Note the windpipe protruding on the throat.

FIG. 28.—The mock-preening of the Garganey drake. Notice that here the outside of the wing is preened; whereby the light blue lesser coverts are very striking. Compare Figs. 8 and 49.

behaviour into a releasing ceremony in an analogous manner to mock-preening and introductory shaking. Even before the beginning of the two display activities now to be described, one sees the trachea protruding on the neck of the drake. The bird holds his neck drawn-in short, after the manner of Mallard drakes leading up to social-play, then slowly the bulge of the windpipe begins to appear. This also occurs in *Dafila*, but in this case only at the instant of the display-call itself (Fig. 24).

3. *Burping.*

All the actions described so far belong to the "introduction" and not to the social display proper, as they do not consume or exhaust the specific quality of excitement, but, on the contrary, serve obviously as self-stimulus, just as I have explained concerning the self-stimulating effect of the introductory shaking of the Mallard drake, in contrast to his "true" display behaviour. The first "consummatory" display that we see in the Garganey's social-play consists in a bird thrusting his head backwards and upwards, the bill remaining

fairly horizontal, and then, just as abruptly, carrying it forward and downward, so that anyone knowing the species of *Anas* and the Chestnut-breasted Teal would certainly be reminded of the first step of the nod-swimming which follows the "bridling" movement (Fig. 29). However, the action of the Garganey does not seem to have anything to do with this. While the lifting of the head proceeds without a sound, in contrast to the "burping" of the African Red-billed Duck, as the head springs back into the normal position a short "Rrrrr" is heard, which is notable more than anything else for the fact that it is so hard to tell from where it comes. One thinks he hears the drake several yards away and then the next moment sees him close at hand. The quality of the tone is deceptively reminiscent of that of a "Ratsche", as the wooden rattles used in Southern Austria are popularly called. These take the place of church bells

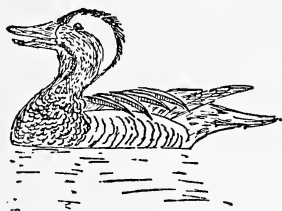


FIG. 29.



FIG. 30.

FIG. 29.—The burp of the Garganey drake. Notice the trachea at the bird's throat, compare with Figs. 20, 24, 34, 39, 46, and 50.

FIG. 30.—The Garganey drake jerking his head backwards.

in Holy Week and produce a noise by the movement of a resilient piece of wood over the teeth of a hardwood gear wheel. For this reason the Garganey is invariably and appropriately called "Ratscherente" by the people living around the Neusiedler Lake. A knowledge of the movement and call of the African Red-billed Duck, in which the burp is also directed slightly backwards, leaves no doubt as to the homology of the burp of the Garganey with that of *Dafila* and *Poecilonetta*. However, the origin of the behaviour I am now going to describe is more doubtful.

4. *Laying the Head Backwards.*

In this astonishing movement the head is laid over the back so that the forehead lies on the root of the tail (Fig. 30), just as one sees it pictured in the Common Golden-eye, *Bucephala clangula* (P. Bernhardt, *J. f. Orn.*, 1940, 490). Then, while the head is brought back in a sweeping curve to the normal position, a loud rattling noise is belched out, during which the stretched windpipe springs, like the cord of a bow, to the front of the neck, lifting a high fold of skin.

This is invariably followed by "drinking". This movement is performed more frequently than burping in a high display intensity, while, in a lower intensity, the latter predominates. There is, therefore, a connection between these two actions which may be regarded as stages in intensity of one and the same instinctive movement, especially as there are, though rarely, intermediate stages between the burp and laying-the-head-backwards in the Garganey. I am therefore inclined to believe that the backward bending has arisen by an "exaggerated" burp. This is also confirmed by the similarity of the introduction and the similar connection with drinking in both. *Querquedula discors* and *Q. cyanoptera* do not have the movement just described. The similarity with *Bucephala* certainly rests upon convergence, which has arisen from the necessity, found in both forms, of stretching the bone-drum to a high degree.

5. *The Turning of the Head.*

The Garganey drake also possesses an orientation reaction in which the distinctive markings on the side of the head are brought to the attention of the duck to the best advantage. In contrast to all other surface-feeding ducks whose head-moving habits are known, the Garganey drake turns neither the bill nor the back of the head towards the duck, but the side of the head, and keeps this position for several seconds directed towards her, with a clearly nystagmic movement also found in other drakes. With swiftly milling drakes displaying around a duck quite a number often jerk their heads nystagmically at the same time. Naturally during the head-turning the head feathers are set in such a manner that the white line of the eyebrows attains its maximum significance.

6. *The Combat of the Drakes.*

This has little to distinguish it. I have already mentioned that when the drakes are angry they belch one-syllabled notes from the bone-drum, as "geg, geg, geg".

7. *The Post-nuptial Play.*

I have unfortunately never seen such play.

(*To be continued.*)

BIRDS OF MIDWAY

By THOS. T. K. FRELINGHUYSEN (Holmdel, N. Jersey, U.S.A.)

Soon after sunset, the red sky over Midway is overcast with a dense cloud of birds ; Shearwaters swarm from cool burrows in warm sand ; Terns returning from fishing grounds, and Albatrosses changing duty with their mates, fill the air with elegant soaring silhouettes. Then little by little, as the gloaming fades, the wild confusion of eerie voices attains symphonic heights as the unseen wind instruments are whirled through darkened space in complex patterns of infinite variety. From time to time the muffled thud of feathered bodies colliding occasionally, followed by a dull thump on the ground, lends a percussive note to the concert which lasts long into the night. However, by dawn most of the Petrels have holed in for the day ; the Sootys and Noddys have gone back to sea, or to their nests on sand and bush ; the tube-nosed swimmers not engaged with egg or young are dancing, and the vast upper arena of the sky is cleared for a single pair of Fairy Terns to perform their heavenly courtship acrobatics because of which they have come to be known among seafaring folk as Chinese love-birds.

The twin islets called Midway lie at the western extremity of the Hawaiian Archipelago, and since 1909 have been designated a bird sanctuary by the U.S. Government. Even as recently as World War II the honeycombed villages of moaning Shearwaters and the extensive nurseries of the two North Pacific Albatrosses were patrolled by the small flightless, red-eyed Rail (*Porzanula palmeri*), which darted about the nest mounds and tunnel entrances in quest of flies, and heedless of man. Since then these unique birds have been exterminated within the narrow confines of their global range by rats. *Sic transit !*

The central Pacific proved the temperate nature of the Midway climate by celebrating New Year's Day of 1943 with a furious storm. The raging seas made the little atoll tremble on its coral footing, and from time to time it seemed to be at the bottom of a maelstrom, and about to be engulfed. At this time, the Laysan and Black-footed Albatrosses were nesting wherever airstrips, roads, guns, and quarters had not yet been established. Undaunted by the gale, they had all turned in their slightly raised nests to face the howling wind ; and one wide beach was studded with streamlined mounds of sand which trailed over the backs of the birds for a distance of several feet. Even the frowning eyebrows of the tight-sitting tubenarians formed grooves that decorated the sides of the mounds in quite a modern style.

There was one spot where the sea seemed especially tempted to go ashore and take complete possession of the land. The white water surged triumphantly through the barbed-wire entanglements as far

as it listed, and it was here that a very small Teal appeared on the foam like a speck of vanilla in a bowl of ice-cream—a pitiful sight. But lo—when along with the rest of the ocean its turn came to go ashore and it rode gallantly up the beach on the crest of a tremendous wave, instead of wading ashore, at the limit it turned about face and coasted back into the fury of the gale.

The morning after this storm, the white sand glistened like driven snow ; and the Australian pines which had been planted in a grove about the cable station years before, accentuated the illusion of northern winter. Yet on approaching the grove one heard the singing of many birds. It sounded exactly like a bird store that has opened its doors on the first warm day of spring ; and were it not for the fact that the lowly Canary is taboo in bona-fide avicultural circles, I would state that a former keeper of the station had raised and released many of these birds several years before. The original stock had come from Hong Kong ; but all that is off the record here. Suffice it to say that a large pine was as heavily bedecked as a Christmas tree with small live yellow birds that reminded one of ordinary Canaries not only in appearance, but in song and manner of singing with throats distended and rocking from side to side in ecstasy. Whatever they were, they deserved considerable credit as Passerines for having clung to their perches with those ridiculously slender feet in the teeth of a 90 miles per hour gale that had raged throughout the previous day and night. Furthermore, these admirable little yellow birds were accompanied by Laysan Finches (*Psittirostra cantans*), slightly larger and not too pretty, but richly endowed with one of the sweetest songs heard from the throat of a hard-billed bird. The combination was delightful.

Frigates and Boobies visit the islands ; the Red-tailed Tropic Bird breeds there in large numbers and has a local reputation of being able to fly backwards as indeed they sometimes do. Golden Plovers *en masse* and straggling lesser relatives winter on the beaches ; and small flocks of Bristle-thighed Curlews lend a major touch of distinction to the population. These splendid long-bills are extremely wary, and although unmolested, they show good sense and take to the air at the sight of man, uttering high wild notes of alarm that flutter the pulse and make the trigger finger of even the most ardent conservationist tremble ever so slightly. Rumour has it that they puncture the eggs of the Albatrosses and eat the contents ; but it was not confirmed by observation. A brooding Albatross would be more than a match, for it sits tight and is free in the use of its punishing beak. Indeed, if the Diomedes could only have exchanged their real troubles for the fantastic worry of Curlews, they would have been far better off than they were at that time.

On returning in November for the breeding season after several months at sea, their losing conflict with civilization would begin.

Former nesting areas had meanwhile been bulldozed into airplane runways, and presented a problem with which their evolution as a sea bird that nests on uninhabited islands had not prepared them to cope. They would stand in bewilderment on the paved location of their former homes, or soar above them heedless of the planes which consequently killed and injured countless numbers. And although a launch could not approach a congregation on the lagoon without the whole flock taking to their huge webbed feet and running over the surface until carried aloft by their impetus, yet on land when a truck would approach one wandering down a new lane through the bushes in search of its nest, it would simply lean aside like a man to let the wheeled monster go by, the difference being due to the hereditary acquaintance of these birds with dangers at sea, but not on land.

It was amusing to watch the first landings of these great soarers who seldom flap except in a calm, after having lost their land-legs during months at sea. At first they crash and somersault clumsily ; later they relearn the approved technique and let themselves down on the flats of their feet with very nice precision.

They are devoted parents and relieve one another fairly in the care of the single grey downy young which has great charm. So many fat poodle puppies are still—thank the Lord—annually converted into animate tumbletugs with beaks.

Attempts were made to save the new generation of an area which had to be cleared for building ; but although in some cases the nestling was moved not more than three feet, the anxious parents were not able to recognize their young once its exact location had been changed.

On being lifted from the nest the baby Albatross regurgitates a clear oily amber fluid from which emanates a subtle but pervading aroma of the sea. It so resembles a fine liqueur that it could be a distillate of the tiny night-surfacing squid—*Loligo*—that Frank T. Bullen in his *Creatures of the Sea* credits with a capacity for enjoyment of being eaten, since that passive but important occupation seems to be its cardinal role in nature.

Of the two species of Diomedes which breed on the Midway reef, the white Laysan Albatross, which has dark wings and does not follow ships, is slightly smaller and a trifle more elegant and discerning than the slate-coloured Black-footed one, but both are very handsome, and when alerted in the excitement of the dance, their large dark eyes and arching necks suggest the nobility of high-caste horses in an abstract kind of a way, while their deep-throated utterances are acutely analogous to a lowing herd of cattle responding to the baton of a competent conductor.

The fortunate fact that the elaborate dance ritual of the North Pacific Albatrosses has already been so well described, makes it

possible to conclude this recollection by citing one instance which seems significant of the indomitable, however unconscious, stoicism that marked the behaviour of these splendid birds under the stress of war.

A steel water tower 150 feet high had to be wrecked because of its danger as a landmark. After a vain attempt had been made to clear the immediate environment of birds, the dynamite was detonated, and it fell with a terrific crash. One foot from the once lofty pinnacle now embedded in the sand, on her single egg, sat an Albatross. She had faced the collapse of the huge gadget with her customary frown.

* * *

BRITISH AVICULTURISTS' CLUB.

The thirty-second meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 12th March, 1952, following a dinner at 7 p.m.

Chairman : Dr. M. Amsler.

Members of the Club : Mrs. J. R. Alderson, H.G. the Duke of Bedford, Miss K. Bonner, Mrs. V. M. Bourne, G. T. Clark, Mrs. G. T. Clark, T. Crewes, P. L. Dabner, A. H. D'Aeth, W. T. Dring, O. E. Dunmore, A. Ezra (Patron), Miss M. Felstead, Miss S. A. Fothergill, J. Frodsham, J. C. Garratt, Miss D. Gask, T. Goodwin, F. Grant, H. J. Harman, R. E. Heath, G. T. Iles, H. J. Indge, Dr. F. B. Lake, H. Mason, P. H. Maxwell, G. S. Mottershead, H. Murray, S. Murray, K. A. Norris, A. A. Prestwich, D. M. Reid-Henry, D. H. S. Risdon, R. C. J. Sawyer, J. L. Sears, E. N. T. Vane, C. H. Wastell, Professor J. Wheatley, Mrs. J. Wheatley, H. Wallace Wood, Mrs. L. Younger.

Guests : M. R. Alderson, J. Bailey, Miss D. A. Devlin, Mrs. W. T. Dring, W. J. C. Frost, Mrs. J. C. Garratt, Mrs. W. Gask, Mrs. F. Grant, Miss S. Indge, Miss P. A. Lawford, A. L. Leighton, H. Leighton, H. M. Luther, Mrs. S. Murray, Mrs. F. B. Scragg, R. Sennett, A. N. Other.

Members of the Club, 42 ; guests, 17 ; total, 59.

Before opening the meeting the Chairman drew attention to the fact that this was the first meeting in the new reign. The Loyal Toast was then drunk.

The Chairman introduced the speaker of the evening, His Grace the Duke of Bedford, who had chosen for his subject, "Liberty Aviculture." The Duke gave a graphic review of the many species kept at liberty both at Woburn and Havant—Cranes, Waterfowl, Pheasants, small exotics, Parrakeets, etc. It is not proposed to deal more fully with what proved to be an absorbingly interesting talk as it is hoped a full account will appear in the Magazine at a later date.

The large audience showed by its warm applause that it had thoroughly appreciated the lecture.

A general discussion followed, in which Tom Goodwin, J. Frodsham, and E. N. T. Vane took part—the Duke dealing with the various points raised.

Usually the Chairman's efforts are taken for granted, but on this occasion we cannot refrain from saying special thanks are due for the very competent manner in which he handled the meeting.

The next meeting of the Club is on **14th May, 1952.**

ARTHUR A. PRESTWICH,

Hon. Secretary.

* * *

NEWS AND VIEWS

Vice-President Jean Delacour is due to arrive in England on 1st May. He will be returning to America mid-June.

* * *

Viscount Chaplin, a former editor of the AVICULTURAL MAGAZINE, has been nominated by the Council to succeed Dr. Sheffield Neave as Honorary Secretary, Zoological Society of London.

* * *

G. S. Mottershead says that at Chester Zoo last year a fine Hornbill suddenly died. Post-mortem examination showed that some misguided visitor had given it a moth-ball.

* * *

Miss Emily Hopkinson has very generously presented the late Dr. Emilius Hopkinson's avicultural and ornithological books to the Society. The collection numbers some 400 and will be added to the Society's very extensive library housed in the Library, Zoological Society of London.

* * *

It has been found that the No. 5 Waterfowl Ring is rather too large for all species of Geese except Greylag. Ringers have had considerable trouble straightening, cutting off about a $\frac{1}{4}$ inch and remaking.

To obviate this trouble a new size, No. 4/5, has been added to the range, price 3s. 6d. per dozen, post free.

* * *

H. Jarman reports from the Zoological Gardens, Adelaide, what is probably a first breeding success. He writes: "Our Tasmanian Native Hen (*Tribonyx mortieri*) eventually raised one youngster which is now fully grown and independent. The parents have just commenced another clutch but the eggs have been scattered, so they may not be serious this time.

We have bred the Black-tailed Native Hen (*Microtribonyx ventralis*) on many occasions over recent years, and it is interesting to note

that at present there are many thousands to be seen on the coastal plains adjacent to Adelaide. These influxes occur every few years."

* * *

Captain R. W. Veitch, who has been so very successful in the breeding of Alexandrine Parrakeets, draws our attention to a recent advertisement which offers for sale : " 27 Alexandrine Parrakeets, English, beautiful condition, £5 each."

It is grossly unfair to genuine breeders for dealers to offer imported birds as English-bred. If these so-called English birds are put outside and die, as they probably will, the English stocks are certain to get a bad name.

This malpractice, all too common in the past, is much to be deprecated ; it is, of course, misrepresentation of the worst kind. Potential purchasers are strongly recommended to avoid dealings with any such advertiser.

* * *

D. Bowles, the Director-Secretary, reports of the Penguins in the Zoological Park, Edinburgh, 1951 :—

" King Penguin : Eleven eggs were laid ; five proved infertile, one chick dead in shell, one chick hatched and died a few hours later. The remaining four eggs hatched and there is every prospect of the young ones being fully reared.

Gentoo Penguin : Two young hatched and reared. Eight days after hatching one of the chicks was at least twice the bulk of the other. The weakling was removed and successfully hand-reared by keeper Victor Scott and his wife.

Maccaroni Penguin : Two pairs nested and each produced one youngster, but unfortunately the first to be hatched was found dead ; the other was reared."

A. A. P.

* * *

NEWS FROM AMERICA

Lee S. Crandall and S. Dillon Ripley have been elected Fellows of the American Ornithologists' Union.

* * *

Dr. E. Beraut writes from Rio de Janeiro : My collection of Humming birds now includes all the twenty-five species living in the region of Rio de Janeiro ; I have added Ruby-Topaz and Polythmus from Pernambuco, and the beautiful *Thalurania baeri* from Matto-Grosso. They all do perfectly well. I have had for 15 months a pair of *Petasophora*. I feed them as follows :—

Early morning and 1 p.m. : 190 c.c. of water ; 18 c.c. of honey ; 7 c.c. of condensed milk ; 2 c.c. of meat extract (Wilson's or Armour's), and one drop of a solution of 600.000 units Vitamin D² and 100.000 units Vitamin A in 30 c.c. of peanut oil.

At 5 p.m. : 190 c.c. water ; 18 c.c. honey ; 5 cg. of vitamin C, to which I add twice a week 5 mg. of Vitamin B¹.

This diet is supplemented by live fruit flies, but these are not eaten by all Humming birds. Those who need it most are the species of *Rhamphodon-Glaucis-Phætornis-Pygmornis* group which live well with me and are most attractive. They lack bright metallic colours, but their flight is extremely graceful and they become extraordinarily tame.

I am soon going to Matto-Grosso and hope to bring back some nice species.

* * *

LONDON ZOO NOTES

By JOHN YEALLAND

As was to be expected, the arrival of Mr. Frost with a collection of Indo-Malaysian birds resulted in the addition of some attractive specimens to the Society's collection.

These included a Ceylon Hill Mynah* (*Eulabes ptilogenys*) ; a pair of Javan Black-throated Fruitsuckers† (*Chloropsis cochinchinensis nigricollis*), of which an excellent coloured plate appeared in the AVICULTURAL MAGAZINE (Fifth Series, Vol. II, No. 1, 1937), together with a description by Mrs. Wharton-Tigar ; two Turquoise Fairy Bluebirds (*Irena turcosa*) ; one Greater Bird of Paradise (*Paradisea apoda*) ; one Timor Crimson-winged Parrakeet (*Aprosmictus jonquillaceus*), and one Javan Jungle fowl (*Gallus varius*).

The presentations include a pair of tame Globose Curassows (*Crax globicera*) ; a Virginian Cardinal (*Cardinalis cardinalis*) ; a pair of Bullfinches (*Pyrrhula p. nesa*) ; a Nepal Hill Mynah (*Eulabes intermedia*) ; a Yellow-fronted Amazon Parrot (*Amazona ochrocephala*) ; a Razor-bill (*Alca torda*), and a Lapwing (*Vanellus vanellus*), while those received in exchange were a pair of Demoiselle Cranes (*Anthropoides virgo*) ; a Blood-breasted (or Bleeding-heart) Pigeon (*Gallicolumba luzonica*) ; a lutino Indian Ring-necked Parrakeet (*Psittacula krameri manillensis*) ; two Greenland White-fronted Geese† (*Anser albifrons flavirostris*) ; an Imperial Pheasant (*Gennæus imperialis*) ; a Mikado Pheasant (*Calophasis mikado*) and two Hoopoes (*Upupa epops*). A Naked-throated Bell bird (*Casuarhynchus nudicollis*) ; a Black-footed Penguin (*Spheniscus demersus*) ; two Pekin Robins (*Leiothrix lutea*), and one Rain Quail (*Coturnix coromandelica*) were purchased and a fine Satyr Tragopan (*Tragopan satyra*) and a pair of Upland Geese (*Chloephaga picta*) were transferred from Whipsnade.

An exciting event was the arrival a few days ago of two pairs of the Scarlet-tufted Malachite Sunbird* (*Nectarinia johnstoni*), an alpine form from Mount Kenya.

* Species new to the collection.

† Sub-species new to the collection.

A further two Black-footed penguin chicks have been hatched, and two more eggs have been laid.

The Emu, which has been provided with a new and more acceptable husband, has laid six eggs.

The Ceylon Fish-Owl's one egg proved to be infertile : the Fraser's Eagle-Owls and the Great Eagle-Owls are nesting.

* * *

REVIEWS

A GUIDE TO BIRD FINDING EAST OF THE MISSISSIPPI.

By OLIN SEWALL PETTINGILL, Jr. Illustrations by GEORGE MIKSCH SUTTON. Oxford University Press. 659 pages. \$5.00. 1951.

This is a book for all bird enthusiasts who travel—and which of them does not—whether only in day-dreaming fancy or vicariously by the spoken or printed word, or in neighbourhood ramble, or, best of all, by pilgrimage over hill and down dale on the endless public highway for personal, first-hand, on-the-spot observation and enjoyment of birds and their ways and the places where they sojourn or dwell. This guide to bird-finding will be found to be no mere recital of grouped bird and place names, useful on occasion though uninspiring as dishwater, but a treasury of bird lore—rich, yet not lush, with descriptive aids to the imagination.

In other words, this book is encyclopedic with respect to its main intent, which is to be “a guide to the exact locales of each species . . . with detailed information on how to reach each spot, where to stay overnight . . . what birds are to be found at what times and at what places”, and yet, despite the preponderantly utilitarian purposes, decidedly “literary”—written with care in choice of subject matter and with charm of style to please aesthetically as well as to inform.

The book should nourish the ambition, which presumably every ornithologist has, whether professional or amateur, to visit in the course of the years the east-state bird haunts most famed and others most alluring to him personally—an achievement far from insuperable in this age of the motor car and rapid transit at individual whim.

So, ye lovers of birds in the wild, have this volume at hand when next you plan a cross-country business, professional, or vacation trip. Though its many pages include an elaborate index and a vast store of information, it has been kept to “pocket size”—altogether an ideal “field companion”, easy to carry, handle, consult.

CARL NAETHER.

WAS FLIEGT DENN DA ? (JUST WHAT IS FLYING THERE ?).

By Dr. HEINRICH FRIELING. 56 silhouettes, 101 black-and-white, and 324 coloured illustrations. Franckh'sche Verlagshandlung, W. Keller and Co., Stuttgart, 1950. 106 pages. \$2.00.

Without question this handy, pocket-sized book, containing useful and easily understood tables and illustrations of 396 species of Middle-European birds, is one of the best published to date. It constitutes an entirely new revised edition of a book by the same title, authored by Goetz and Kosch a good many years ago. Already in an edition of 92,000 copies, the book bids fair to become a best seller, and no wonder.

It is very compact, giving first of all a seven-point explanation for the use of the various tables. The following first section offers a review of essential characteristics for identifying distinct groups of birds, as songbirds, birds of prey, pigeons, etc. These characteristics are stated very concisely and clearly and excellent silhouettes, usually showing the bird flying, add greatly to emphasize significant traits of the birds.

The finest (and *beautiful*) aspect of this splendid little book is the coloured illustrations, and I have yet to see more natural ones in any bird-book anywhere. The colours are superb and the poses so lifelike as to make recognition a pleasure and a privilege indeed. Opposite each coloured plate—it illustrates anywhere from ten to fifteen different species of birds—we find data relating to the size, special characteristics, habitat, and name (scientific and German) of each bird. If only the English names had been added, what a sale this book would find among English-speaking bird students !

Unquestionably this little book sets a standard in avian literature. Would that we had its equal in beauty, clarity, and compactness as relating to birds of other countries. A "must" for every bird student's library.

CARL NAETHER.

* * *

NOTES

BREEDING ELEGANT PARRAKEETS.

In my collection of Parrakeets I have pairs each of Pennants, Many Colours, Stanleys, Redrumps, Bourkes, Princess of Wales, and three pairs of Elegants plus one young hen of 1951 breeding.

I was very thrilled to end up the season with eighteen young Elegants from the three pairs and the results are in a way rather interesting, indeed, the whole story has its points.

The original pair arrived from Australia in the autumn of 1946, having been bred in the early part of that year. I was not disappointed when they did not breed in 1947 because of their age, but they grew into beautifully strong, healthy birds. They developed a taste for a small brand of sunflower seed I was using at the time, and ever since all have had little other than plain canary and the above sunflower—occasionally a little white millet, but except during the winters they have consumed a great amount of green food, with seeding heads of dandelion as first favourite. In fact, all my young Elegants have been reared largely on these dandelion seed heads.

In 1948 they had three young ones, which I kept for stock, putting them in an

aviary by themselves. These became very fine birds—fully better than their parents. Still I did not expect anything from the young ones that year. The old pair again (1949) had three young—they have not varied from their established practice of three per year. Then I missed the young hen who, as I say, was occupying a flight with her two brothers. I found her in a log which I had not troubled to remove, sitting very closely on four eggs. Three duly hatched and were reared, but—Query A—which was the father? Both young cocks attended the young which, with three “parents”, developed into grand birds. These I disposed of.

I started 1950 with three pairs—the original pair, brother and sister (here I was apparently lucky enough to select the correct partner for the hen), and the other young cock with a hen I obtained from a member of the A.S. Results in 1950 were the usual three from pair No. 1, three from pair No. 2, but nothing at all from pair No. 3—the hen not settling down very well.

1951 found me with the same three pairs not expecting anything out of the ordinary. But this time all three pairs went to nest. Pair No. 1, three eggs (as usual), three hatched and reared; pair No. 2, four eggs (ditto), three hatched and reared; pair No. 3, five eggs (a pleasant surprise), five hatched and reared. These actually surpassed anything I have yet had. and it is a young hen from this nest that I have kept.

Then to my agreeable surprise pair No. 2 went to nest again and laid the usual four eggs, hatching and rearing three as before—making nine in the two seasons.

Not to be outdone—and perhaps because it was “Festival Year”—pair No. 3 decided to have “another go” and laid four eggs, which duly hatched and were reared. Nine in *one* season! All the time I was on tenter hooks in case the Duke of Bedford’s “X” found out what was going on up North, but apparently “he” or “it” was fully occupied with more valuable collections than mine. I hope this account does not come to the notice of “X” otherwise I may get a visit next year.

Be that as it may, all my surplus youngsters have gone, and if their new owners get as much thrill out of them as I have had it will make up for many of the disappointments we get in this avicultural business.

I. BATY.

* * *

CORRESPONDENCE

BIRD SHOWS

Although I have both judged and exhibited at shows and would not condemn bird shows as being always, of necessity, evil institutions, I must confess I find myself in a considerable measure of agreement with Mr. Goodwin. Standard show cages for British, budgerigars and many foreign are much too small and are calculated to make the bad impression on visitors Mr. Goodwin refers to. Usually nothing short of an earthquake will shift the average British citizen out of established custom but, for the sake both of the birds and of the good name of aviculture, such an earthquake is long overdue in the Bird Fancy.

BEDFORD.

CROWHOLT,

WOBURN,

BLETCHLEY, BUCKS.

WANTED—A FEMALE DUCORPS'S COCKATOO

I have a male Ducorps's Cockatoo (*Cacatua ducorpsii*) from the Solomon Islands, which I should like to pair with a hen bird of the same species; and I should be most grateful if any member of the Avicultural Society has a hen they would let me know, so we could come to an arrangement over breeding from them. My bird is very healthy and full of life—it talks a little—it says “Hello Polly”.

I was most interested to read Mr. G. Iles' article in the AVICULTURAL MAGAZINE of 1950, on the Belle Vue Zoo collection of birds, but in my humble opinion I believe their bird to be a Bare-eyed Cockatoo. There is a plate of this Cockatoo in Goulds *Birds of New Guinea*, volume v, plate 47.

P. H. MAXWELL.

THE ZOO PARK,

WHIPSNADE,

DUNSTABLE, BEDS.

The Editor does not accept responsibility for opinions expressed in articles of correspondence.

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- J. ADAMSON, 21 Bright Street, Darlington, Co. Durham. Proposed by Miss K. Bonner.
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NEW MEMBERS

The thirty-five Candidates for Election, proposed in the January-February, 1952, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

READMITTED

Mrs. H. DENNY, C.B.E., J.P., The Chantry, Horsham, Sussex.

CHANGES OF ADDRESS

Sir GODFREY DAVIS, I.C.S., F.Z.S., to Beresfords, Boughton Monchelsea, Nr. Maidstone, Kent.
 Miss M. FELSTEAD, to 108 Beulah Road, Thornton Heath, Surrey.
 H. FOGG, to 190 Station Road, Wylde Green, Sutton Coldfield, nr. Birmingham.
 K. HILL, to 93 Elmhurst Drive, Hornchurch, Essex.
 Dr. E. HINDLE, to The Athenaeum, Pall Mall, London, S.W. 1.
 H. A. MITCHELL, to 2 Stuart Street, East Kilbride, Lanarkshire.
 G. W. NOREEN, to 10440 7th Avenue, N.W., Seattle 77, Washington, U.S.A.
 Dr. A. R. ROBERTSON, to P.O. Box 95, Kroonstad, O.F.S., South Africa.
 H. C. VAN DIJK, to Fabriekstraat 6, Tilburg, Holland.
 H. J. VAN HEYST, to Van Stolk Trading Co., 427 Grand Parade Centre, Castle Street, Capetown, South Africa.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

FOR SALE

AVICULTURAL MAGAZINE : 1928-1949, bound ; 1950-1951, in parts. In perfect condition.—Offers to Miss M. H. KNOBEL-HARMAN, 19 Connaught Square, London, W. 2.

AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road, Oakwood, London, N. 14. Telephone : Palmers Green 4484.

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

Secretary-Treasurer : Mrs. Milton Erlanger, Suite 550, Empire State Building, New York, N.Y.

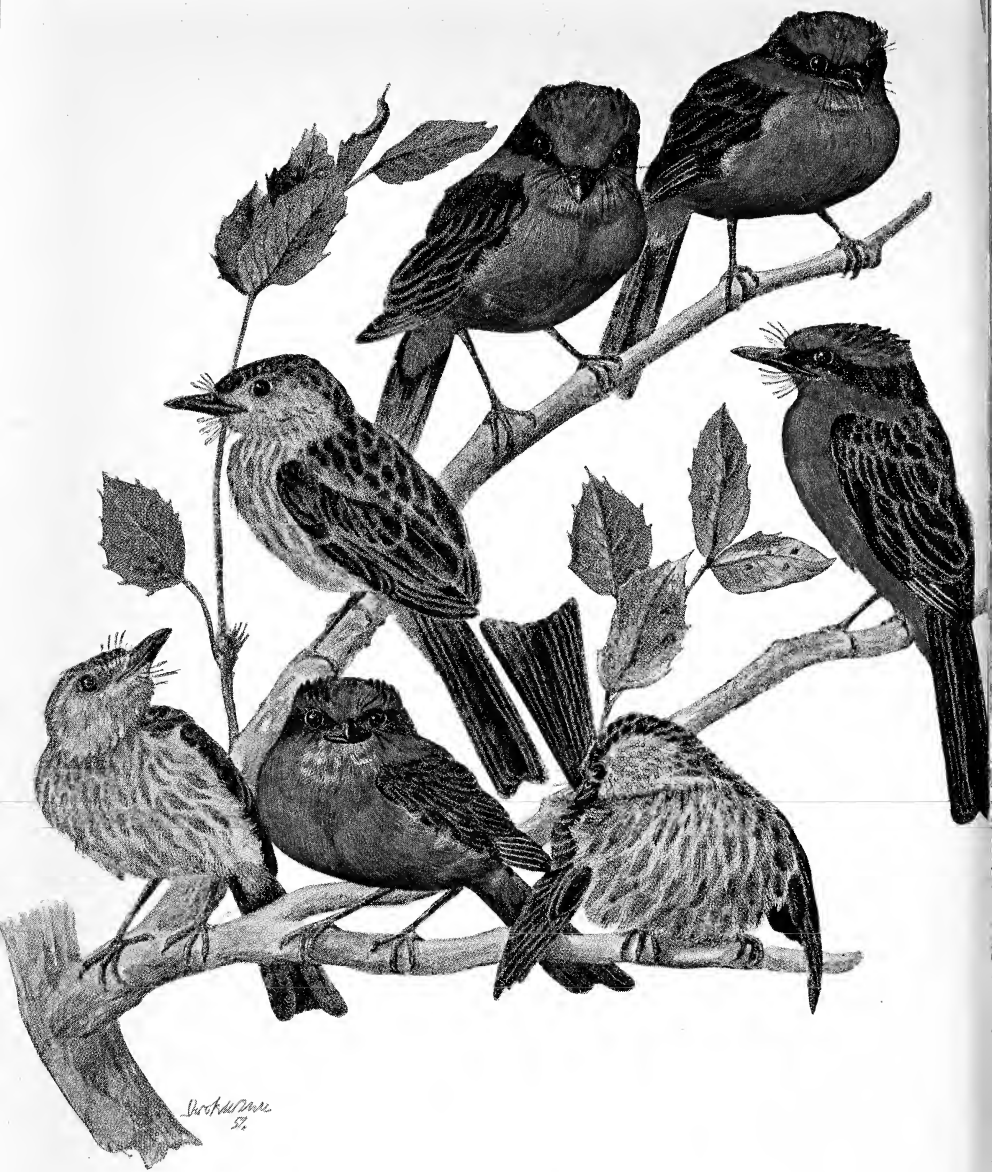
The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London, W. 9. Telephone : Cunningham 3006.

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford, England. Telephone : Hertford 2546-9.



Pyrocephalus rubinus (Boddaert)

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THE SCARLET FLYCATCHER IN FREEDOM AND CAPTIVITY

By Dr. JOACHIM STEINBACHER (Frankfurt-am-Main, Germany)

The Tyrannidæ or Tyrant Flycatchers is a family which is confined to America where it occurs from Alaska to Patagonia. Predominantly small birds—the largest forms are the size of a Blackbird—most of them are found in South America, particularly in tropical regions. Many of them behave so strikingly and characteristically that they are the best known birds of their range—such are the King Bird (*Tyrannus tyrannus*), the Phœbe (*Sayornis phæbe*), or the Scissor-tailed Flycatcher (*Muscivora forticata*) in the United States, and the Benteri (*Pitangus sulphuratus*), or the Spectacled Flycatcher (*Lichenops perspicillata*) in Brazil and Argentine respectively. Some of them have partially attached themselves to man and breed near human habitations, while other species prefer the loneliness of the mountains, the dimness of the tropical rain forests, or the sunny expanses of the prairies and savannahs. Here they live like the species of Flycatcher of the Old World, the large forms similar to Shrikes in that they pursue insects from elevated positions and in addition occasionally also take small mammals, always at once returning to their original perching place. According to C. E. Hellmayr, who in 1927 undertook the working out of the last monograph of the whole group, there are nearly 400 species, 115 genera and 7 sub-families included under this name. He characterized the violently quarrelsome disposition, the fighting temperament, the pronounced aggressiveness in defence of territory in all members of the family, which certainly is unique. This is neither confined to certain seasons nor to birds of the same size as is usually the rule.

Among the predominantly plainly coloured Tyrant Flycatchers, which mostly have grey upperparts and yellow or white underparts, is a species which is remarkable for its red plumage, the Scarlet (Tyrant) Flycatcher (*Pyrocephalus rubinus*). Its scientific name indicates this even if it had no other name than “Firehead” and similarly also is the Spanish designation “*Bazita de fuego*”—“Little flash of fire.”

This little bird of the size of a European Flycatcher, which is as much at home in the wide areas of southern North America as in Brazil and Argentine, ranges over an incredibly large area in which it is split up into eight slightly different races. It occupies a happy position in the folklore of the Brazilians, as it is regarded as a pledge and talisman of true love. This is undoubtedly the reason for its plentifulness and for the affection in which it is held by all inhabitants of tropical South America. In the sun-baked plateaus of Mexico, the dry steppes and deserts of Texas and California, where it fills a monotonous lifeless landscape with colour and life, it is a special pleasure to come across it. On this account certain scientific observers became so enchanted with its attractive vitality that they often almost overlooked the scientific significance of its evolutions, whether it was Burmeister and Schomburg in the old days or Beebe and Bent in more recent times. The last-named, in particular, sketched a captivating life history of the most northerly race of the Scarlet Flycatcher (*Pyrocephalus rubinus mexicanus*) in Bulletin 179 "Life Histories of North American Flycatchers, Larks, Swallows, and their Allies". H. W. Sagner referred to a special peculiarity of this form in that already long before the true breeding season, which here coincides with the beginning of the rainy season, pairs are formed in order to make the best use of the short season when food is abundant. Therefore immediately after the setting in of the first rains the building of the nest can start at once. H. Krieg found the typical form (*Pyrocephalus r. rubinus*) in Argentine and Paraguay a common inhabitant of the open savannahs, sitting on the outer branches of bushes, and H. Sick confirms this for the interior of Brazil where the bird is regularly met with in open wood and bush country, occasionally also in the fringing forests along the large rivers. It is nevertheless striking that this species disappears again soon after the cares of the breeding season are over and then obviously carries out a northerly migration. This can perhaps also be explained as an adaptation to the exigencies of climate, as with the beginning of the dry season the bird starts to search for damp places near the tropical rain forests. Normally quite quiet and almost sluggish except for soft calls in flight and lure notes, and without any characteristic voice worthy of note, during the breeding season the bird carries out small display flights over its territory which are occasionally accompanied by a kind of excited song, a series of sharp-toned call-notes. The nest, which mostly hangs horizontally and is well hidden, is firmly built and often interwoven with spiders' webs. It contains 2-3 white eggs flecked with brown.

Though in his well-known work *Gefangene Vögel*, 1876, A. E. Brehm clearly emphasizes the merits of the Tyrant Flycatcher as a cage bird and praises its indifference to what it eats and its entertaining

disposition, and though most species occur in sufficient numbers to make their capture and transport to Europe an easy matter, nevertheless until recently representatives of this group of birds were rare, and only isolated specimens were to be found in Zoological Gardens and in the possession of private individuals. In the last edition of his *Fremdländischen Stubenvögel*, Neunzig mentioned only ten species as having been imported into Europe (1921) and since then this number has not materially increased. This may have some connection with the limited accommodation which zoological gardens as well as private individuals must always take into consideration, as the Tyrants need plenty of space and have to be kept alone if there is not to be strife. Therefore we only had such species as *Pitangus sulphuratus*, *Fluvicola climazura*, *Arundinicola leucocephala*, *Elaenis spectabilis*, *Serpophaga nigricans*, and *Lichenops perspecillata*, but never the Scarlet Flycatcher. But in the AVICULTURAL MAGAZINE, 1935, a female of the latter species was reported to have been brought to England and at the same time H. O. Wagner saw a specimen in an importation at Antwerp. Whether the female soon died and the bird imported into Antwerp went to the United States, where *Pyrocephalus rubinus* now is to be found here and there in zoological gardens, remains uncertain.

In any event I was very pleased when, at the beginning of 1951, Mr. C. U. L. Behrend, Buenos Aires, promised to send me a pair of Scarlet Flycatchers, which arrived on the 7th March in good condition after a long air journey. As far as is at present known they are the first pair of this species to arrive in Europe. From the first the birds were quiet and confiding, in spite of the fact that they had only been in captivity for fourteen days, and at once took to the usual soft food which is given to Nightingales. The female even took mealworms from the hand after a few days, but after six months in captivity the male still does not do this. For fear that they might perhaps not live long, I had several different coloured sketches made of the birds which show them in several characteristic positions. Fortunately, however, they proved to be hardy, went through the first full moult without difficulty, and became increasingly confiding, but all the same I had to give them special care.

In the summer the male lost the pretty ruby red colour of his feathers except for some red spots on the back of the head, breast, and belly, and assumed a speckled grey dress. I nevertheless hope that in autumn he will moult back into his red breeding plumage, as already several new red feathers are showing on his head, neck, and breast. This second moult appears to cause the birds more difficulty than the first, which is obvious by the discomfort shown by the birds.

I will add a few words on the behaviour of the Scarlet Flycatcher so far as I have been able to observe it up to the present. Most striking was the frequent erection of the feathers of the crown, a

behaviour pattern which appears to be typical of males of many Tyrants. This is interpreted as a threatening attitude since the bright colours of the feathers of the crown are brought into prominence. Also worthy of note was the short hovering flight performed by both sexes, but more frequently by the male, when they took water or food. The taking of water often preceded the flight, since the bird flew with lowered beak over the surface of the water and then hovered. Larger pieces of food were always broken up on the perching branch by several blows from the beak before they were swallowed. Moreover the female often pulled away the best pieces from the slower or more cautious male, even taking them out of his beak. The male often stared with his head on one side at worms freshly thrown in, and also at the food bowl, but this habit was not observed in the female. The ejection of undigested remains of food as pellets occurred regularly, according to the kind of food, several times a day, accompanied by violent jerking of the head. The sexes kept very close together, but as in other behaviour the female seemed to take the lead.

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The coloured plate which illustrates this article was kindly presented to the AVICULTURAL MAGAZINE by Dr. Joachim Steinbacher, editor of *Die gefiederte Welt*. This generous gift and gesture of friendship is greatly appreciated, and warm thanks are accorded to Dr. Steinbacher.—ED.

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COMPARATIVE STUDIES ON THE BEHAVIOUR OF ANATINÆ

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(Continued from Volume 58, page 72)

XII. THE SHOVELER *Spatula clypeata* (L.)

A. GENERAL.

Without doubt, the Shoveler can be regarded as an extreme type of the Garganey group. This is clear not only in its behaviour, but also in certain colour characters common to both groups. I may mention the striking and almost identical distinctive markings of *Querquedula cyanoptera* and *Spatula platalea*, both natives of South America. According to all previous accounts, the Shoveler is not

supposed to have a social courtship display as do all other surface-feeding ducks. However, practically no zoological garden or fancier has a good number of first class Shovelers, and I still suspect, in view of the unusually highly developed breeding plumage of the species, that they might possess a form of display as yet unknown to us which, for some reason, they never show in captivity.

B. THE NON-SEXUAL REACTIONS AND NOTES.

In contrast to all the Anatidæ that I know, Shoveler ducklings have two distinct "whistles-of-desertion". The "tit tit tit" uttered rather rapidly at lower levels of intensity, suddenly, at higher levels strikes a long drawn-out "teet teet teet". The conversation-call and the call-note of the female are generally Mallard-like, but the drake has only one call, a rather hoarse "chat" which, uttered in succession either slowly or quickly, must fill the role of both the long "Raeaeab" and the two-syllabled "Raeabraeb" of the Mallard drake. A thing peculiar to the Shoveler alone among all surface-feeding ducks I know, indeed by all Anatidæ, is that it lacks the drinking performance. In its place is brought in, as a substitute activity, the gabbling which is so prominent a character of the Shoveler, along with the corresponding differentiation of the bill, so that its meaning is quite like the drinking of other ducks. In this gabbling the drake says "chat . . chat . . chat" very quickly.

In any excitement, Shovelers make those pumping head movements which other ducks use only during the introduction to mating. In this respect *Q. discors* and *cyanoptera* behave exactly like the Shoveler! Even ducklings and half-grown birds do this. Heinroth has already described a peculiar habit of the little ducklings. Lined up, one close behind the other, they swim around in little circles, so that they gabble with bills straining the water. One Shoveler gabbles right at the stern of another, and thus, obviously takes in the small plants and animals he has stirred up.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting*.

In the female this corresponds, as far as the movements of the head and neck are concerned, exactly to the pre-coital pumping of all true surface-feeding ducks. The call, in rhythm and tone-colour, as well as its significance, is quite clearly recognizable as inciting. However, there is lacking the accompanying threatening movement of the head, directed towards the enemy, which is present in the Garganey female and alternates with the pumping movement.

2. *The Decrescendo Call*.

This is still further differentiated along the lines pointed out for the Garganey. The single cry, quickly rising and dying down, has

something really frightening about it. One believes that he hears the death cry of a fatally hurt duck or one that has been seized by a predator.

3. *The Prelude to Mating.*

This is worthy of special mention here, in that whereas the pumping behaviour in other surface-feeding ducks serves solely as a function of the prelude to mating, in the Shoveler it has become so very prevalent that it has become a general gesture of excitement possible of employment in a great many connections. As already mentioned in the section on inciting, it has entirely taken the place of the side movements of the head. All this, again, is exactly the same in *discors* and *cyanoptera*.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

As already stated, I do not believe in the complete lack of social display in drakes in *Spatula*. In my opinion the bright colours of the drake say more for its existence than the absence of conclusive observations does against it. I intend, as soon as possible, to breed a greater number of Shovelers with the care that they require, so as to be able to observe several young drakes mating. In scientific books the difficulty of keeping Shovelers is generally over-estimated. One of my females, bred from an egg, had perfect offspring last year, and is now in the best of condition, having survived all the dangers of the 1939-1940 winter and the move to Königsberg.

1. *Turning the back of the head.*

Except for the gabbling which the Shoveler drake uses in the presence of the female at every opportunity, a distinct turning of the back of the head is the only display activity known to me. While doing so, he holds his feathers in a way corresponding throughout to the special "set" of the Mallard drake's plumage in the corresponding behaviour.

2. *The Combat of the Drakes.*

As my old Shoveler disappeared before his son came into full plumage, I do not know anything about the fighting code of the drakes. The ducks have the habit of seizing the breast feathers in incidental contacts just as Mallards do, but I never saw a blow with the wing.

3. *The Post-coital Play.*

After treading, introduced by very intensive pumping, the drake makes a distinct burp movement, uttering a peculiar nasal sound, not otherwise heard. Then he swims around restlessly, so that one almost gets the impression of a nod-swimming, and therewith turns the back of his head to the female. During the whole post-nuptial play he

utters his "chat . . chat . . chat" with the greatest intensity, just as in gabbling.

XIII. CHESTNUT-BREADED TEAL

Virago castanea (Eyton)

A. GENERAL.

With this form we come to a new group of ducks which are connected just as clearly with the Mallard as the various Anatinae already dealt with, but in quite another line of development. Let me remind you of what I said at the beginning about the method of reconstructing relationship links. If we place the ducks already mentioned more or less in a line running from the Mallard to the Shoveler, the forms we are going to speak of now constitute a little group where such a classification would not work at all. The ducks I know which belong to this group are: the Chestnut-breasted Teal, the Grey Teal (*Virago gibberifrons*), the European Common Teal (*Nettion crecca*), and the Yellow-billed Teal (*Nettion flavirostre*). One could class these ducks together as "Green-winged Teals", because they have, along with very distinctive black and green specula, a courtship whistle which is distinctive of them alone, and is provided with a peculiar preliminary note which has given them the German name "Krickente".

The Chestnut-breasted Teal, as well as *V. gibberifrons*, shows, in several respects, a significant connection with the Mallards. Between themselves these two species are just as closely related as the Mallard species with a showy breeding plumage, are to those without one.

B. THE NON-SEXUAL REACTIONS AND NOTES.

In the female, these correspond closely enough to those of the Mallard, but in the predominance of a continual creaking sound it reminds one somewhat of the Pintail. Apart from display the drake is almost silent, yet he often uses the softly breathing "voice". I cannot say for certain whether he has a one-syllabled call-note and a two-syllabled conversation-note. However, I am quite sure that the "Krick" whistle, which I shall describe later, in both *Virago* and the two *Nettion* species known to me, fulfils the function of a call-note and warning note of the drake, corresponding entirely to the

"Raeacb" of the Mallard and the "ge^eee^cg^eee^ce" of the Pintail.

Unfortunately, I do not know the ducklings.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting*.

The continuously rising creaking note is quite like that of the Pintail and the Bahama Duck, but there is something peculiar about its sharply rising, squeaking intonation. It sounds almost like the cry of a little pig.

2. *The Decrescendo Call.*

This consists of many syllables uttered quickly, one after the other, the first syllable being the strongest.

3. *The Nod-swimming.*

Alone among the surface-feeding ducks known to me, except the species of *Anas* in the narrow sense, the female Chestnut-breasted Teal has a pronounced nod-swimming. The behaviour is much more highly differentiated than that of the Mallard. Not only are the nod-movements more pronounced, that is, more strongly "mimic-exaggerated" than the latter, but they are also introduced by a slight "bridling" which in *Anas* occurs only in the drake. Finally, the Chestnut-breasted duck distinctly turns the back of her head to the drake when the nod-swimming is over, which Mallard females never do. One has the impression that the high differentiation of bridling and nod-swimming, which is the outstanding characteristic of the display of the drake Chestnut-breasted Teal, has in some manner or other been "handed over" to the female.

4. *The Prelude to Mating.*

This is entirely similar to that of the Mallard.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of Display.*

Of all surface-feeding ducks, this is most like that of the species of *Anas*.

The gathering of the drakes, the relative indifference to the presence of females, of which notice is taken only in the turning of the head, the "solemn" rest before display, and the introductory shaking, remind one throughout of *Anas*. Moreover, *Virago*, alone among the Anatinae (Table), possesses all the display behaviour which we have come to know in the Mallard, and in addition, it has another which is lacking in the Mallard.

2. *The "Krick" (fretful) Whistle.*

After an introductory shaking the drake does not lift his head very far; he does not thrust it as far upward as is done in the burp. While his head is in a position of rest, there follows a little nodding sneeze-movement, in which the lower mandible flaps down as if on a spring and a whistle with a preliminary note is uttered, which can be represented by "P-zih". The sound, forced out simultaneously with the movement of the head, gives the impression of a sneeze. In the burp of the drake Pintail one has the impression that the thrusting-up of the head is in itself the mechanical cause for the release of the whistle. At a higher intensity of the movement and correspondingly higher lifting of the head, the whistle comes exactly at the culmination

point of the movement, and always when a certain degree of stretching has been reached, as though a mechanical release mechanism in the syrinx was worked through the stretching of the trachea, like cocking a gun. On the other hand, in the case of the krick-whistle of *V. castanea*, it is obviously a muscular function independent of the lifting of the head, which lets off the whistle; and, indeed, one in which the muscles of the lower jaw take the controlling part. The whistle comes when the head is held at rest with the neck stretched.

The distribution of the krick-whistle in the species of the family seems to be the same as that of the peculiar sharply bisected black and gold-green speculum. I know that of *Virago* and *Nettion*. In the former the similarity between this whistle and burp behaviour, and especially the fact that, just like the true burp of *Dafila* and *Pæcilonetta* drakes, it has the combined significance of the lure and warning call which we learned in the Mallard's long drawn "Raeaeab", makes me think that it represents a more advanced stage of the differentiation of the burp, just as this itself may have arisen from a greater differentiation of the ordinary watchful lifting of the head that accompanies each lure and warning call of all Anatidæ. This is supported by the fact that the krick-whistle, precisely in its function of luring and warning, has become more independent of the original function of all drake whistles in the social display, than in anything else. *Virago* and *Nettion* drakes sound their krick-whistle on every occasion even without being in the mood for display, about as often and with as many meanings as a Mallard utters his "Raeab".

3. *Burping.*

This is similar to that of Pintails and, as with them, it occurs as an independent act, not, as in the case of the Mallard drake, linked with the head-up-tail-up. There is no sound to be heard, but from the movement of the bill I think it may be assumed that the muscle co-ordination of the breathing apparatus is like that in the "Geeee-geeee" of the *Dafila* drake; however it produces only an inaudible breathing, a rudiment of the voiced note. The whistle, which is always heard in the burp of *Virago* and *Nettion* drakes (not, as in *Dafila*, only at a high level of reaction-intensity) is short and one-syllabled and has a sharp "ee" sound, not a flute-like "oo" sound as in *Dafila*.

4. *The Grunt-whistle.*

This corresponds closely in all points to that of *Anas*, EXCEPT that the grunt sound is lacking.

5. *Head-up-tail-up.*

This differs from *Anas*, in that it lacks an obligatory linkage with

the succeeding behaviour of burping, bridling, and nod-swimming. The behaviour pattern of the initial step, as well as the head-up-tail-up proper is almost like that of *Anas* except that the elbows are lifted much less and the rump is not raised quite as high as in that genus.

6. Bridling.

This occurs as a completely isolated display behaviour. The movement is clearly stronger and reaches farther back than in the Mallard drake, the head being jerked back almost to the roots of the tail, but without being raised or brought away from the upper contour of the back ; it looks as though the back of the drake's head slid along



FIG. 31.—The drake Chestnut-breasted Teal, *Virago castanea* (Eyton) bridling. Compare with Figs. 17 and 40.



FIG. 32.—The strongly mimic-exaggerated chin-lifting by the drake Chestnut-breasted Teal. The position is maintained for several seconds by paddling. Compare Figs. 3, 16, 42, 44, 45, and 47.

the back on a track (Fig. 31). At the same time, the Chestnut-breasted drake utters a one-syllabled shrill whistle after the Mallard fashion.

The distribution of the separately uttered bridling whistle is exactly the same as that of the krick-whistle and of the black-green speculum. I have already mentioned, in reference to the Mallard, its probable origin from the introductory intention-behaviour for nod-swimming.

7. Chin-lifting.

In the midst of the social-play, very often after one of the drakes has performed the grunt-whistle, the head-up-tail-up, or the burp, several of the drakes will thrust their heads high with chin raised and remain at the peak of this movement for several seconds, during which they have to tread water in order to hold an upright position, just as the Bahama drake does in his exaggerated and prolonged head-up-tail-up (Fig. 32). The movement reminds one forcibly of the lifting of the chin which follows the Mallard's down-up movement, being extraordinarily similar, both in the manner of employment of the movement and its simultaneous appearance in several drakes. This chin-lifting has surely come from the down-up movement and therefore indirectly from a drinking movement. The

dropping out of a lowering of the bill to the water surface, present in this original behaviour, speaks just as little against the homology as does the exaggeration of the ensuing lifting of the chin. In the Gadwall, we shall see a certain homology of the down-up action of the Mallard drake, in which the introductory downward movement of the bill has also fallen into disuse.

8. *Nod-swimming*.

As with the Mallard drake, nod-swimming occurs in the male Chestnut-breasted Teal only in linkage with other preceding display activities. From the physiological and the systematic points of view, this linkage is one of the most interesting parts of the instinctive courtship behaviour of surface-feeding ducks. In the Mallard drake, the bridling and the nod-swimming occur only, as acts already differentiated, after the head-up-tail-up or after mating, in obligate linkage with these two very different instinctive movements. Neither bridling nor nod-swimming, in the Mallard drake, ever occurs alone, while the Chestnut-breasted drake's much more highly differentiated bridling has become an independent display movement. At higher intensities of display, obviously beyond a precisely pre-determined level of activity—specific excitation, the grunt-whistle, head-up-tail-up, burp, head-turning, bridling, nod-swimming, and the turning-of-the-back-of-the-head in the Chestnut-breasted drake merge into single complex and firmly linked series of movements. Also, in *Virago*, all the actions named are either linked together, or each one occurs alone, with the single exception of nod-swimming and the turning-of-the-back-of-the-head which occur only in linkage. The physiological peculiarity in this lies in the fact that the linkages between grunt-whistle and head-up-tail-up, between head-up-tail-up and bridling, and between bridling and nod-swimming apparently enter into play or break off precisely at the same level, as fragments of this behaviour-chain *never* occur, but always either individual acts or the whole chain of behaviour. Nod-swimming itself, as well as bridling, is noticeably more mimic-exaggerated than in the Mallard. That the origin of the bridling is from putting the head back for the first nod, becomes very clear in the Chestnut-breasted Teal from the fact that, not merely when he starts to swim, but before each nod the head is laid so far on the back that one gets the impression of the bridling movement (see Fig. 33). The turning-of-the-back-of-the-head is quite similar to that of the Mallard drake both in the behaviour pattern and the way the head plumage is held, and is very striking because of

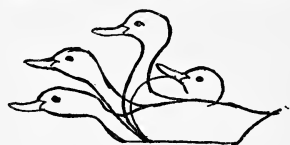


FIG. 33.—Diagram of the movement of the drake Chestnut-breasted Teal in nod-swimming. Compare with Figs. 6 and 14.

the beautiful copper-green colour of the Chestnut-breasted drake's head.

9. *The Fighting of the Drakes.*

This seems to correspond entirely to that of the Mallards, and plucked places on the front of the breast arise in the same way.

10. *The Post-coital Play.*

This corresponds entirely to that of the Mallard, except that the nod-swimming is, naturally, exaggerated in the distinctive manner of this species.

(*To be continued*)

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BIRDS RECEIVED IN 1951 AT THE CHICAGO ZOOLOGICAL PARK, BROOKFIELD, ILL., U.S.A.

By KARL PLATH (Curator of Birds)

The above prosaic title does not begin to express the delight and pleasure derived from the advent of many species, old and new, which have augmented our varied collection during the last year.

We will name first those species new to the collection, some of which, of course, are not new to the readers of this article who are connected with the bird departments of the various other zoological gardens. In scientific order we will start with the four Ringed Penguins (*Pygoscelis antarctica*). These are new to this country and are very attractive in action and appearance. A trifle smaller than the commoner Humboldt Penguin they are distinctive in having a black chin-strap drawn across the throat just below the chin. They are black above and snowy-white below. They swim with all possible speed in their 20 feet long tank, then suddenly shoot upright out of the water on to the top of the rocks two feet above the surface. They were eager to feed from our hands from the day of arrival, and their unusual vivacity adds much to the rather solemn demeanour of the Kings and Humboldts. There were two new Kings added at the same time to our other assemblage of Kings, some of which we have had over five years.

Black-necked Storks (*Xenorhynchus asiaticus*) have been seen in several of our American zoos, but this is the first time we have had them. They are not too common, however, and we have one pair, of which one is noticeably larger and has brown eyes, while the smaller one has yellow eyes. This is a sexual distinction and I believe the brown-eyed bird to be the female. They are superficially like the larger Saddle-billed Stork, but their foot-long beaks are all black and the legs are red. Otherwise the black and white coloration is very

similar. I saw the Australian form of this species in the beautiful Taronga Park Zoo, and wanted to take one back to the States, but they were not so inclined.

Sacred Ibis (*Threskiornis aethiopica*). For the first time we have these interesting birds and it is years since I have seen any in any zoo. They are attractive with their leathery black necks and metallic-glossed black wing plumes. In 1949 we brought two of the very similar Australian Sacred Ibis (*T. a. strictipennis*). They have less of the neck bare and the black plumes on the wings are grizzled with white. They are also a trifle smaller in size. In the Asiatic Black-necked Ibis (*T. melanocephala*) the wing-plumes are grey. We have had this bird in the past.

Cackling Goose (*Branta canadensis minima*). These diminutives of the big Canadian Goose are rather rare in collections. They are found on the coast of Alaska and the Aleutians and winter along our Pacific coast down to San Diego, California. They are stately little birds and attractive. A little larger than a Mallard.

Lesser Tree Ducks (*Dendrocygna javanica*). These little tree ducks remind one of our native Fulvous Tree Ducks as they are very similar in colour. They are rarely imported though many have been reared on the West Coast.

Condor (*Vultur gryphus*). These great birds are famed in legend and fiction as being the largest birds that fly and so they are, as their wing expanse ranges from 9 to 11 feet and the weight is in the neighbourhood of 25 pounds. They are not too rare, but few zoos have the space to give them. They do need some space to fly, but do not always appreciate the very large flight cages some zoos give them. Any confined space is not large enough for a condor or an eagle so far as flight is concerned. They are happiest when they can soar aloft without any boundaries. However they can live and become tame in limited quarters. We have two, a fully adult male and a young male under the 7 years, said to be needed to develop the full colour pattern of black and white. The young birds are brown all over, and I believe it is Mrs. Benchley who wrote that the comb on the head is noticeable on the male from the time of hatching. The female lacks this appendage.

Crested Eagle (*Morphnus guianensis*). This eagle is seldom seen in captivity, and is reminiscent of the larger Harpy Eagle. It is found from Honduras to Peru.

Hawk-eagle (*Spizaetus ornatus*). Another beautiful bird of prey very seldom seen. It is a strikingly marked bird with legs feathered to the toes, and it has an ornamental crest of erectile feathers. Found from Mexico to Argentina.

Spengel's Parrotlet (*Forpus spengeli*). These are the smallest of the parrotlets, and so closely resemble the Mexican Parrotlet that it needs

close scrutiny to tell them apart. Aside from size the face of the male differs in being a more brilliant green, and the beautiful turquoise of the Mexican species is even more exquisite in the Spengel's. The chief difference in the two species is that the female of Spengel's Parrotlet has a decided yellow tinge on the forehead. Differing in this respect from all the other species. Native of Colombia, South America.

Blue-crowned Conures (*Aratinga acuticauda haemorrhous*). These are rather unattractive birds of a family noted for brilliant colouration. They are plain green with a shade of dull red on the underside of the tail. They are found in Eastern Brazil, South America.

Hartlaub's Touraco (*Turacus hartlaubi*). These too, are not as brilliantly coloured as some of the other green touracos but of course, have the wing primaries brilliant carmine.

Hooded Warbler (*Wilsonia citrina*). This is one of our native birds, a member of the great American family of Wood-warblers. All are dainty little things, and most have brilliant yellows or orange mingled with their olive-green and black plumage. They are not too hardy in captivity, though we have kept the American Redstart, a gorgeous beauty in salmon and glossy black, for over four years. The Hooded Warbler has olive-green wings and tail, most of the head and chest black, and the underparts, forehead, and cheeks rich yellow.

White-winged Whydah (*Coliuspasser albonotatus*). These are rather unattractive members of a family which usually has brilliancy of colour and decorative development of tail plumes. They are not uncommon, but are new for us.

The above-mentioned species are all newcomers to our collection, but in addition we have many more repeats or duplicates. They include the American Egrets, handsomest of their genus, Jabiru, glorious Roseate Spoonbills, New Zealand Sheldrakes, several species of Pheasants, many shore birds including dainty Stilts and Avocets, 43 young born of six species of the parrot family, Quetzal, Ground Hornbill, Tanagers, and a host more of the commoner species often seen in zoos.

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HOMING BUDGERIGARS: THE START OF THE SEASON 1952

By THE DUKE OF BEDFORD (Woburn, Beds., England)

The breeding season in the homing Budgerigar aviary really began earlier than I intended. A greywing mauve hen in the hen's resting aviary had a slight illness, and after she had recovered, I decided to tone her up by a short period at liberty, intending to return her to the hen's aviary before she laid. However, she rushed into breeding condition in about ten days, and I found she had already laid an egg when I took down the box she had selected in order to carry her back to her former abode. I therefore decided to leave her to it though it looked like being a severe endurance test for her prospective family. She had mated with a rather scrubby yellow/lutino cock who had nearly died of coccidiosis the previous summer. It is not easy to see on what principle hen Budgerigars select their mates. They certainly do not always choose the bravest and strongest, as do hen grouse, and they certainly do not always choose the most beautiful; in fact, they display such a shocking disregard of the standards of the Budgerigar Society that I have often thought of adorning the side of the hen's aviary with the drawing of the Ideal Cock Budgerigar as a sort of pin-up boy.

The greying mauve hen hatched five of her six eggs at the beginning of the long spell of cold weather that began in January, but although she had been a perfect mother to two large broods the previous summer, she disgraced herself by becoming the worst plucker of her young I have ever had. Why they did not succumb to the combined effect of the cold and their mother's attentions, I cannot imagine, nor do I know why she suddenly developed the vice, unless, when the water was frozen in the early mornings she was thirsty, and their juicy quills tempted her. When her family were due to leave the nest I put her and them in a flight cage in the birdroom. The first to come out—a lutino—died rather suddenly a couple of days later; she may not have fed it, but the rest were reared, though not good specimens.

In order to try and obtain a few early youngsters to shorten the rather dull period one gets in Spring with no young birds flying before the May broods from March layings are on the wing, I turned a non-exit opaline blue hen into the liberty aviary about the middle of January. From many suitors of all ages she selected a young green cock whose forehead was still largely barred. She laid five eggs, but only one hatched, now a sturdy green youngster out of the nest. About a fortnight later I introduced a yellow olive hen bred the previous year. She selected as her mate an adult green cock who

is bossed by nearly all the other male birds in the aviary. A yellow cock kept driving him off and offering himself as a substitute, but she would have none of him and he finally had to retire well snubbed. She laid six eggs, and at present has six youngsters nearly feathered—four yellows and yellow-winged greens, one green, and a cobalt.

The previous summer I asked Mr. Hallstrom to send me a few wild bush-bred Budgerigars, which he kindly did. They are smaller than our birds, and their legs are not dark blue as some old writers had declared them to be. (Is there a blue-legged local race?) I cannot see that they are any better green than our domestic greens. Their spots vary. Some are very poor, but others are quite fair for the size of the birds. The one cock I have in the liberty aviary, though smaller than the domestic cocks, is master of them. When he first went out he displayed much more intelligence in finding his way about than the average aviary-bred bird (larger Parrakeets are the same) and his morals appear superior, for he never tries to flirt with other cocks' wives. He is, however, less tolerant of young that do not belong to him than are domesticated cocks. The wild hen to whom he was mated mysteriously disappeared while the aviary was still closed to allow new birds to settle down, and he then paired with an old green hen who mysteriously made her way to my aviaries last summer, much the worse for the long period of close confinement in a small cage from which she had clearly escaped. The main lot of hens for the first round I put into the aviary about 15th February. Most of them were homers, but there was one curiously-coloured non-exit that had bred me some nice birds the previous summer; a new rainbow I had got from a dealer; and the green hen already mentioned. One homer, a lutino, got egg-bound, though the weather was mild, and was taken off breeding. Another homer, a sea-green, died egg-bound with her fifth egg, with very little warning. She was all right the afternoon before, but dead the next morning. Strange to say when only four months old she had laid her first clutch of eggs, and hatched and reared the young in the middle of the awful winter of 1950-1951. Now, after a full year's rest, she succumbed in very warm weather for the time of year. The old green hen, who I felt sure would get egg-bound, laid her clutch without trouble, and now has young.

Most of the hens selected their nests without much quarrelling, nearly all preferring those which faced north. An opaline sea-green was inclined to be meddlesome round the yellow-olive's nest, provoking a demonstration from that lady, until she removed herself, but the worst trouble came from the rainbow and the old green. I find that old hen Budgerigars that have bred in cages or single-compartment aviaries are generally much more troublesome than those who have been accustomed from the first to community

life. The sight of so many nests seems to go to their heads, and they can neither make up their minds nor mind their own business.

The rainbow, after appearing to settle on two nests in succession, only to desert them, planted herself in the box next the opaline blue. This might not have been too bad if she had behaved herself, but she insisted on glaring in a hostile fashion at her neighbour over the partition between the boxes, and even went so far as to attack her on the perch opposite her nest. The opaline blue was normally a quiet bird who did not interfere with anyone, but there are some things which make even the most easy-going people see red.

When I returned to the aviary after a brief absence, the clash had occurred. The rainbow hen was hanging on to the end of a twig looking very dazed and groggy, with several bites on her head and one on her leg, while the opaline blue was flouncing up and down the aviary, landing with a whop! at alternate ends, head erect, eyes blazing, and body rigid with indignation. She was in a towering rage! There she'd been, not saying a word to anyone, and that miserable creature must needs come and insult and interfere with her on her own doorstep! She'd never heard of such a thing in all her born days! *She'd* teach her a lesson, and anyone else, too, who tried the same game on her! Her mate endeavoured to pacify her, but with little effect. "There, there, my dear," he seemed to say, "I'm sure you've driven her off and she won't worry us again. Let me give you some food and then go back to Baby or he will catch cold." But her reply evidently was, "You don't understand; you can't trust people like that. She might slip in and murder our child when my back was turned. I won't have her next door! I won't have her at this end of the aviary at all! I won't! I won't!! I won't!!!". After some time she did go back to her nest, but no sooner had she reached the bottom of the box than the memory of her wrongs drove her out again to make a further demonstration. I am not usually in favour of corporal punishment, but where people with or without feathers who cannot mind their own business, are concerned, I must admit it often does them a world of good! When she had recovered from her injuries, the rainbow hen slipped quietly up to an untenanted box and hardly left it. The box, as a matter of fact, was next the yellow-olive's, but so unassumingly did she take possession of it, that she provoked no objection from that rather touchy lady.

One would have thought that the discipline meted out to the rainbow hen would have been a sufficient warning to other would-be disturbers of the peace, but one more lesson was needed. The writer of the Book of Proverbs comments on the way in which a plain girl who at last gets married is liable to throw her weight about. It was the same with the old green hen. Her new-found happiness in married

life, combined with the sight of so many nest-boxes, went to her head, and she could not make up her mind where to settle down, and would peer into other ladies' houses and tell them what a much nicer husband she had than they ! The fact that this happened to be true did not make her observations any more popular, and it was only after receiving from the opaline blue a very bloody nose that she, too, learned to keep that organ out of other people's affairs. When she had been taught to obey the rules of decent society, peace descended upon the aviary, and the opaline blue returned to her domestic duties, and became as unobtrusive as before. One other incident occurred about a fortnight later. An unmated greywing mauve cock discovered a yellow-winged green hen in the hen's aviary, and the couple seemed so devoted to each other that I brought her up to the liberty aviary. Her fiancé was of course delighted to see her, and was most attentive throughout the morning, but alas ! at midday the faithless creature jilted him in favour of the yellow cock who had been mated to the hen who plucked her young and who had been removed. The poor greywing mauve was frantic with annoyance, as well he might be, and showed his exasperation by flapping his wings, as a cock Barraband will do when something has happened to upset his domestic affairs. He tried to drive the yellow cock away and bribe the faithless lady by feeding her, but it was no good. She would actually still let him feed her and then push him out of the way and run off to rub noses with the yellow cock (when a Budgerigar hen rubs noses with a suitor it means that she has accepted him), and let *him* feed her too ! I never saw such a heartless proceeding nor one which demonstrated more clearly the well-known danger of a girl getting engaged to the first man she sees much of, *before* she has had the opportunity of meeting others !

The rather noisy disputes between the yellow-winged green's suitors had a disturbing effect on the yellow-olive hen who left her nest and began to flounce about and, in kitchen parlance, "create."

The yellow-winged green, though so unscrupulous in her love affairs, was, however, a perfect lady in matters affecting rights of property. Directly she discovered that a box already belonged to someone else she removed herself at once, and she made it quite plain that she would not intrude on the yellow-olive's box or even on her corner of the aviary. She made it equally plain, however, that she would stand no nonsense from anyone interfering with her where she had a perfect right to go and, as she was a very big and powerful bird—indeed the finest homer I have bred—the yellow-olive soon decided that she had better stop making an unreasonable fuss.

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BREEDING RESULTS OF A MIXED COLLECTION IN CALCUTTA IN 1951

By LEO A. ARA (Calcutta, India)

Some of my finches have been busy and have had a number of young—Parson, Zebra (Common, Fawn, also White), Ribbon, Spice, Fawn Silverbills, Blood, Grey Javas, White Javas, Red-billed Weavers, Russ' Weavers, Rufous-necked Weavers, Cordon Bleu, Red-crested Cardinals, and a number of others, including Mannikins, Waxbills, and Buntings. My Lovebirds have been breeding too, Blue Masked, Fischer's, Nyasaland, Masked, Peach-faced, Black-cheeked, and I have some hybrids, Peach-faced \times Masked, Fischer's \times Nyasaland, Fischer's \times Black-cheeked, Abyssinian \times Masked. My Pintailed Nonpareils have bred. Very few here can keep them alive for more than a few weeks. I have a large number of other birds which have no partners, and nothing can be done about it, as dealers are not permitted to import. I also have many which are true pairs, but evidently they are a bit too modern and do not believe in settling down. Or is it the housing shortage? Maybe they want to be left alone in their own homes. My Blue-winged Parrotlets do nothing else but threaten each other and fight. Well, I suppose that's how it is all over the world. Pairs of Blue-crowned Conures and Quaker Parakeets are, however, showing a little interest in breeding.

Recently I was quite amused when I saw a young Zebra Finch fed in turn by a Bengalese and a Pintailed Nonpareil, and most surprised when later it induced a Diamond Dove to give it a feed. It was evidently managed somehow as the youngster seemed satisfied.

In April, 1951, I obtained three birds, the first time I have seen the like, one almost completely red and the other two dark brown with yellow rumps. I think they are Scarlet Grosbeaks (*Haemotospiza sipahi*). In September, one of the brown birds began to change colour, gradually, and is now completely golden-yellow. In October I noticed a patch of yellow on the breast of the red bird, and in November it was almost golden-yellow in colour. I suppose these two are cock birds and will later change colour from yellow to red. The third bird, which is still brown, must either be a hen or a young cock.

My White Cranes (*Grus leucogeranus*) are not doing too well. All of them have swollen toe-joints due probably to the climate or something lacking in the diet. I have noticed that even the one at the Zoo, two which were purchased and shipped to America, also four other birds, have or had the same trouble.

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NOTES FROM A RECTORY GARDEN

By The Rev. J. R. LOWE (Fairford, Glos., England)

Bach's air, No. 3 Suite in D Major, was being played on the gramophone the other day and a very persistent bird voice kept coming through, which for the moment defeated me. Coming into the room I saw it was a young cock Crossbill really letting go ; it was quite a song and delightful. He is only this season's bird, and his golden-green plumage has not yet displaced all the infant stripes. His sister lives with him in a large box-like structure, $48 \times 36 \times 20$ inches, and she is still very much in her nestling stripes, though (30th August) shedding many feathers. I regret to say that she is one of those girls who does not know her own mind : on occasions she is charming to her brother and the next minute she will make a frightful face at him and push him off a branch, she will snatch an almond or a fir cone out of his beak in a most unladylike manner.

They are a charming couple and quite fearless. They have cedar or some kind of fir branches to play on, and these are renewed fairly often as they tear them to pieces. The staple food is a good parrot mixture, and they have one or two almonds every day, with larch cones and fir cones—these latter keep them much occupied. As the autumn comes they will be offered berries of different kinds.

Early next spring they are going out into a large planted aviary, and with suitably placed spruce and cedar branches we shall hope for some home-grown *Loxia curvirostra curvirostra*. Last year the Editor was kind enough to let me mention the Blackbird that went to school and the Common Whitethroat. Both flourish. The Blackbird whistled in his garden aviary through May and June, but not the glorious Blackbird song but a rather vulgar cadence learned, I imagine, at his prep. school. It began often at 3 a.m., and many who passed by came in to say there was a strange bird in the garden. A small companion was found for him in May. He was kind to it but now it is larger than Tweet and rather to our dismay is moulting into a cock. We did so hope it was going to be a comfort and a helpmeet.

The Whitethroat has just completed a lovely moult, and earwigs, spiders, and crane flies, and the odd bluebottle have given him a tremendous polish. He sang his harsh spring song till the end of June, and any day now he will treat us to his sub-song, which is more attractive than his love songs. Last winter he won a silver cup.

Next door to the Whitethroat lives a Tickell's Blue Flycatcher, a gentleman whose confidence it is hard to win. Shy and supremely active, his song is like a chime of little silver bells, and anyone who happens to have a crane fly or grasshopper about them is more than welcome. It is difficult to say at which of the two universities he was educated.

Edward must be mentioned. Edward is only a common Starling, but full of charm and character, and becoming vastly handsome. Spots appear as if by magic every day now. He started out into the great wide world by being washed down some spouting in a rain-storm. I regret to say some brothers and sisters were drowned but Edward was just alive when found and never looked back. We heaved a sigh of relief when he could manage his meals by himself, as he wanted breakfast so terribly early. He coughs and sneezes rather, and we are waiting patiently for Aniodol treatment, but twenty-one miles of water seem to produce insuperable problems.

From April onwards I found myself paired to a hen Chaffinch. Whenever I went into the aviary she spent all the time on me and behaved in a most embarrassing manner as the season advanced. In despair I got her a husband of her own kind. She made a beautiful nest, incorporating small portions of a tweed coat of mine. She laid four eggs and hatched three babies. But would she feed them? Not on your life. Her husband had lost his heart to a hen Canary, and his method of courtship was so violent that the horrified Canary broke into a soft moult and was useless for the rest of the season.

The cock Chaffinch was removed, but undeterred Mrs. Chaffinch built another nest, laid three eggs, and sat on them for weeks, and so attractive was I that if she saw me even outside the aviary she clung to the wire, demanding some attention. Now in a deep moult she prefers my shoulder or lap to a branch.

In the same aviary a pair of Goldfinches had three nests, and four youngsters reared to maturity.

A hen Greenfinch laid twenty-one eggs, her husband was a Canary, and all that effort produced only three birds that have reached maturity. This couple have reared three young Greenfinches that had left their nest too early.

In our small aviary a very tame hen Bullfinch lived with a cock Canary. I had great hopes of this pair until a wild cock took up a position outside and refused to budge. The hen Bullfinch's behaviour was natural but tiresome. She fell desperately in love with the wild gentleman. I removed the Canary, much to his relief, opened the aviary door, in went the wild cock. In rather less than a week they had built and five eggs appeared. Four young were hatched, one reared for a week, and then they gave up. I opened the aviary and I have an idea a family was raised over the garden wall.

1951 BREEDING RESULTS AT THE KESTON FOREIGN BIRD FARM

By EDWARD BOOSEY (Keston, Kent, England)

Despite the horribly cold and wintry weather which continued well into May, we had a rather unexpectedly satisfactory 1951 breeding season at Keston.

Among the larger parakeets, Golden-mantled Rosellas and Lutino mated to Lutino-bred Ringnecks did particularly well, and it is interesting to note with the latter that the percentage of Lutinos they produce does not remain anything like constant each season, though it probably evens out over a number of years. In 1950, for instance, the various pairs produced an unusually large proportion of Lutinos, which was offset this season by a predominance of Greens. A hen Alexandrine \times Lutino Ringneck hybrid mated to her brother did not go to nest, and their brother was put with a supposed young hen Alexandrine, which however moulted out as a cock. This hybrid is now mated to a true hen Alexandrine and it will be interesting to see what they produce next season.

A fair number of Stanleys, Redrumps, and Cockatiels were reared, and a pair of Mealies, who pluck their young ones in the nest, produced a small brood which were only slightly plucked on the back.

The old pair of Pileated Parrakeets had six eggs in their first nest, two of which they hatched and lost when about a fortnight old. However, they laid again at once, this time rearing three nice young ones, and of the six young ones they reared in 1950 the Duke of Bedford has two pairs at Woburn. I don't consider them at all easy to sex when young, and the two I kept both turned out to be cocks. At first I thought this year's three young ones were two hens and a cock, but when I tried mating them to last season's young cocks (now in full adult plumage) it became apparent I was wrong and that they were two cocks and a hen, so, including the parents, we now have two pairs and three odd cocks.

The old pair are not in the least destructive to the woodwork of their aviary, but all their children are—terribly so. However, it is well worth having to cover exposed woodwork with wire-netting, as Pileated have so much beauty and personality and are such very entertaining and individual parakeets.

A pair of Roseate Cockatoos reared three very nice young ones, and a hen Blue-fronted Amazon, one of a brood of five bred here in 1939, reared four fine young ones, her previous clutches with previous husbands having always proved infertile. This brood is of particular interest, as they must be the first brood of second generation aviary-bred Amazons ever reared in confinement.

The hen had plucked them slightly on the back, but they soon grew these feathers and were excellent young ones, very strong on the wing even their first day out of the nest. They fledged with a fairly long interval between each, the youngest and last to come out being—as seems always the case with a brood of Amazons—rather smaller than its brothers and sisters. However, it was a nice little bird, and Miss Knobel, when she came down to see them, took a great fancy to it and bought it.

A second pair of Amazons consist of a hen Yellow-fronted obtained in 1950, mated to a cock Blue-front which Miss Knobel found for us in a London shop, and which only arrived in the spring and, being very cage-cramped and out of breath at the slightest exertion, could hardly be expected to be fertile, until he had spent a year or two in an aviary. I think he is an old bird, but he has the purest yellow shoulder patches of any Blue-fronted I have ever seen—pure primrose yellow with scarcely a vestige of red. The hen Yellow-front is a charming bird, and would make a delightful pet, as she is extremely tame and gentle and loves being handled. Rather to my surprise she went to nest as soon as she was given a box, but being very out of practice, she achieved only two very strange-looking eggs—one extra large and shaped like an hour-glass, and the other quite round and the size of a pea ! She was, however, very proud of them, and sat on them for weeks until I finally had both them and the nest box removed.

A third pair of Amazons did not go to nest.

Young were reared by Masked and Fischer's which are the only Lovebirds we have at present.

Of Finches, a number of Common, Silver, Fawn, and White Zebra Finches were reared, as well as Bengalese ; a few Gouldians ; and a brood of young Long-tailed Grass Finches. I thought the latter rather interesting, as the parents reared them without mealworms or live food of any kind, entirely on seed and green food and ryegrass.

The usual vast quantities of Budgerigars numbering several thousand, were bred, in all the infinite (and, to me, bewildering !) present-day range of colours and colour varieties. New varieties which we have added to our breeding stock are Crested Budgerigars and Harlequins. The latter have a spotted appearance which reminds one rather of a Dalmatian Carriage Dog, and though they are very distinctive, they strike me as being quaint rather than beautiful, but they certainly make a complete contrast to all other colour varieties. The Crested Budgerigars have a crest in the sense that a Crested Norwich Canary has.

Thirteen young Turquoisines were reared, and this, with last season's seventeen, makes a total of thirty young Turquoisines reared from a nucleus of three imported specimens—a pair and an odd cock—received towards the end of the summer of 1949.

Elegants reared their usual small broods, and a hen Bourke's, mated for want of something more suitable, to a cock Budgerigar, laid and incubated two clutches of infertile eggs. At first I thought there might be a brood of very unusual hybrids, as the Budgerigar continually fed his Bourke's wife and was most attentive to her, but nothing came of it, and it seems that it is quite impossible to cross a Budgerigar with any other parakeet. I believe a Budgerigar is said, on one occasion, to have hybridized with a Peach-faced Lovebird, but I must confess I have always taken this assertion with a great many grains of salt, as, of all the matings that have been tried, it seems to me quite the most unlikely to prove successful.

One thing that may militate against successfully producing a hybrid with a Budgerigar as one parent is the male's curious courtship display, which consists of first sitting on one side of the hen, then giving her several sharp biffs in the face, before flying rapidly round to repeat the performance on the other side! This is so unlike the pre-nuptial display of any of the grass parakeets (which are nearest to Budgerigars in size) that it is perhaps hardly to be wondered at if they resent this cave-man stuff, although the above-mentioned hen Bourke's was prepared to put up with it—provided her Budgerigar husband duly fed her afterwards!

The rarest bird on the farm, a male Double-eyed Dwarf Parrot, *Cyclopsittacus diopthalmus*, which the Duke of Bedford asked me to house for him, and which is still very flourishing, is quite the most enchanting little bird imaginable.

Roughly speaking he is green, paler and yellow beneath, and with red and blue areas and touches of orange on the head. His eyes are large and brown and extremely intelligent and his black beak is large and powerful for his size.

Although he is only about the size of a Nyasa Lovebird, he is a true miniature parrot, possessing all the charm and intelligence of the larger parrots. He can move very quickly, and like some Lorikeets jumps when excited quickly along the perch, turning in mid-air, facing first one way and then the other! He can also creep along a perch in the usual parrot hand-over-foot manner, but with extreme slowness, so that, although he is actually moving all the time, you hardly realize he is in motion at all. What the purpose of this stealthy movement may be I have no idea, but I have certainly never observed it in any other bird.

He will take food from my fingers, and normally his voice is rather squeaky, but if you have passed his aviary and he thinks he is being neglected, he can create a really terrific harsh screeching din, out of all proportion to his size, in order to attract attention to himself. Although he shows no sign of talking, he is an excellent mimic of other birds, and imitates most cleverly in his small voice the excited alarm

note of Brown's Parrakeets (a pair of which occupy the aviary behind his) and also the morning and evening cries of Ringnecks, and it is quaint to hear such a tiny bird imitating the cries of other birds, many times its own size.

At first I thought he would prove delicate, and housed him in a flight cage in a heated birdroom for the winter, but this caused him to start feather-plucking, so I put him out as soon as possible the following spring. Actually he has proved extremely hardy, and has spent the whole of the past winter in an unheated outdoor aviary, being, of course, shut into the double-wooded shelter each night. Apart from ordinary parrot food, I give him a small piece of bread soaked in sweetened watered milk twice a week, as well as plenty of sweet ripe apple, which he adores, and also green food of which he is particularly fond of the stalks of seekale beet.

A mate for him was sent over from Australia, but very unfortunately died at Woburn during the winter, in spite of the fact that it was kept in a large flight cage in a heated birdroom.

I started to write this article at the end of 1951, but for various reasons I couldn't finish it, so am doing so now (March, 1952). During last spring we obtained several Jackson's Whydahs, which strike me as being temperamentally quite different to other Whydahs, as they are extremely tame and intelligent and the cock of our pair will take mealworms from my fingers, though the hen is shy. They are also aggressive to other birds and terribly destructive (as I know to my cost!) to growing shrubs—even Euonymus—in a planted aviary. Even out of colour, however, they are, to my mind, quite the most attractive of the Whydahs, and I remember, in my youth, seeing them in full colour at the Zoo, with their extraordinary tail which, in miniature, so exactly resemble that of a domestic cock. My male sang a great deal during the winter, and came into a sort of semi-colour, getting much blacker, but he has just moulted and reverted to the brown plumage which resembles that of the female, which makes me rather wonder whether these Whydahs do not, perhaps, come into full colour until they are two or three years old.

Four young Grey Singing Finch \times Canary hybrids were reared, and look very like a large Grey Singing Finch with a touch of yellow on the breast. They are, however, the loveliest songsters imaginable. They proved to be one hen and three cocks, and the latter are all singing now most beautifully. Their song is as continuous as that of a Skylark, and curiously like it, but with unmistakable Canary notes interspersed, and, when resting and taken notice of, they utter the typical "Sweet!" of a Canary. They are very neat and lively little birds and quite tame. We have mated the hen to one of the cocks to try and find out if the hybrid is a fertile one.

LIBERTY MAGPIE

By PETER J. PANTING, B.Sc. (Goodwick, Pembrokeshire, Wales)

Of the many birds I have had the opportunity of keeping and studying, Margaret takes pride of place. As a schoolboy, in May, 1946, I brought home a cold and deserted young Magpie—a state due probably to the constant visits of the local youth to the nest. It had pin-feathers but little life, though it revived in a warm nest of hay in a box, sufficiently to take a little nourishment. As I was in school her dietary needs were mainly attended to by my mother—who fortunately understands baby birds and their needs. On a potion of bread and milk, with egg, minced meat, and various fresh insect offerings, Maggie grew and thrived. She was kept in a shed, where numerous other animals also lived (and still do), and an insulating pad of cotton wool served to keep her warm at night. It was not long before a cheerful little bird (with a sorely truncated tail!) was hopping about the shed—and making a frightful mess of the place! I hadn't meant to keep her, so as soon as she was flying strongly the wire door of the shed was left open. She went out, but not far! As soon as her benefactors appeared she would fly to them for sustenance.

In a lathed-in space over the wire door an opening was made, with a little door to fit it and a perch to alight on. This was "Maggie's door", a convenience which took little time to be put to good use. I had earlier fitted an old pigeon-ring for her identification.

Her companion was an old Jackdaw, who had been ignominiously swept down a chimney, with two "brothers", some years before. Jackie had a stiff wing, due to his unfortunate descent at such a tender age, and could not fly—and hence could not be let out except under supervision. They got on fairly well together, but occasionally fought. They would bathe in company, and both devoured swarming ants with great avidity.

Maggie attached herself to the Pigeons, whose loft was nearby. She would fly around with them, getting hopelessly left behind as she grew older. She would perch on roofs and chimneys after a while, but preferred next door's apple trees and some adjacent pines, but always roosted on her perch in the shed and her little door was closed. She would come when called, even from a housetop, to perch on head or arm, quite unafraid and expecting no tangible reward.

When autumn came Maggie got her adult plumage, glossy and resplendent—and a full-length tail. From then on she was immaculate and beautiful always. She bathed often with the Pigeons, pulling their tails until they left their bath, though they did not fear her. Also she would suck their eggs, if left unattended, but this was seldom. She was often in their loft, but a sitting bird

would keep her at bay ; or would tweak the cats' tails, to their great annoyance, and rob the dog, who sneaked away, growling, from a bone at her audacious approach. Usually daily visits were paid to the scullery and kitchen to examine everything ; she being very fond of fresh milk, would remove protective saucers or muslin covers with squawks of delight, to filch the cream, and would sit on the sink, watching my mother prepare vegetables, for hours. In the dining-room, when the window was open, her strength would be tried at carrying away any object fancied, but she was hardly strong enough for most. Once she did take a silver serviette ring, which I managed to take from her (about a month later !) as she was rolling it down the inclined garden path, snatching it as it reached the bottom ! For once I was too quick for her. It was filthy and had apparently been kept in a damp place, or buried. She did not find it again !

Several of her " treasure houses " came to light at different times. They contained rounded pebbles, pieces of glass, silver paper, fruit stones, and such small items mainly, though she was quite fond of coloured paper, in small pieces. She was very cautious about hiding these properties but would let me watch her conceal food, in crevices in walls as a rule, stuffing up the aperture with grass and earth with great cunning. How she loved spiders—we would call her whenever we found one in the shed, and she would eagerly chase cabbage white butterflies, one of her few useful pursuits.

Food worried her but little ; bread and milk she usually scorned when adult ; minced meat would be taken, and dead mice were great ! She would wait for hours to catch these unfortunates, which were usually present in the shed. Her liberty was never curtailed. She was usually in when the weather was bad and her door was only shut at night against cats, as a rule, but she never minded if shut in.

Should I be eating anything when she was about, with a sudden swoop through the air she would attempt to snatch it. Often I was taken by surprise, and she succeeded, but I remember her disgust at a sticky piece of pink nougat !

All Magpies seem to be thieves : she managed to get hold of several articles—including a bunch of small keys—which were never found, to our confusion. Flower petals, particularly marigolds, were another item apparently worth gathering. She used to bring these in, on times, and present them to the Jackdaw, whose cage door was always opened (by himself !). What these gifts were for I cannot fathom. She would often manipulate her aluminium ring, but never pulled at it.

Jackie could whistle and " meow " to deceive any cat, but Maggie was no vocalist. She would sit quietly and make a subdued chattering, exactly like a Budgerigar, for long periods. I cannot think what this

meant, for nobody in the locality had a Budgie then and I have never heard such notes recorded in the Magpies' natural repertoire.

Maggie could be picked up by the only part of her which she allowed to be held—her beak! Lifting bodily by this member perturbed her not in the least! She would allow her head to be tickled, as so many birds will, but refused any further liberties with her person. She was surprisingly light.

Sitting still in cold weather, she would alter her appearance entirely by puffing out her rump feathers into a voluminous grey mass. This was done, to a lesser extent, when she went to sleep at night. Always she showed no fear of people, whether previously known or not, and her trust was never betrayed. Everyone who saw Maggie—and they were many—loved and were fascinated by her and her "taking ways"—the latter usually literal.

The local gardens were not her boundary; a large elm (now, alas, felled) on the village square was a popular vantage point. I have seen her—she would always squawk to me—half a mile and more away from the house, and would come down when called, to perch on my shoulder for as long as she cared. I only once remember her utter the so well-known alarm call, which was when a strange cat sprang at her (and fortunately missed), which seems very remarkable.

In the winter of 1946 she was lost in a snowstorm, and was gone for nearly two days; but she appeared on an old building near our house as I was going to school on the second morning, and was home within a few minutes. By this time she had a mate. This bird, a wild one, would follow her to the garden and walk about on the shed roof, but would not venture down to the perch and door, and flew away at the least alarm. One frosty morning there were four Magpies in our garden and the next—right in the middle of the village, which was unusual, to say the least. She must have inspired some confidence! This mate was somewhat larger than Maggie.

Autumn of 1947 saw me in the Army. For several weeks Maggie wandered a lot. She was hardly ever seen in the garden, but she soon resumed her old habits. On my first leave the greatest welcome I received, perhaps, was from my Magpie, who followed me or sat on my shoulder for as long as possible during the few days I spent at home. Luckily for her I was in the garden for most of the time. Before long she got used to these comings and goings, accepting them with apparent resignation.

She was never a very spiteful bird. My ferrets were feared, and would not be closely approached when they were exercising in the garden. Although she would enter the Angora rabbits' hutches (through the mangers) the babies were never touched, and the rabbits seemed not to resent her presence. Neither did I ever know her to touch a young Pigeon, but as the fond mothers of these helpless

morsels guard them pretty closely in their early days, the opportunity probably did not occur. Small birds—Sparrows and the like—were often chased (but never, apparently, harmed) when they came too near.

In April, 1948, my mother wrote to say Maggie had not been home for a week. On a night of very high winds someone (later discovered) had entered the shed and frightened her into flying out—probably in attempting to catch her. Next morning the big door was open and she was gone. We never saw her again. Our beautiful, beloved bird had left us . . . for ever.

There is a sequel: about three weeks later a “Do you know?” column in a local paper bore the following: “A dead magpie, bearing a ring, N.U.R.P. 31. LSC. 475, was found by Mr. D. Carey Evans while working at St. Dogmael’s Abbey ruins.” It was brought to my notice by someone who didn’t even know that I had a Magpie but just that I was interested in birds. My hopes fell on reading it, for we thought she still lived, and would return.

St. Dogmael’s Abbey is some 16 miles away, straight across the sea—the southern end of Cardigan Bay. My poor, frightened little bird, what fears did she know, blown across the open sea on such a wild night? Magpies are never powerful flyers—though her graceful form, swooping through a clear sky, had so often gladdened my eyes as she dived and turned. She must have died, on this distant promontory, probably from exposure—for she could cater for herself. A letter to the paper brought her ring and a note from her finder. He was very interested, being fond of birds himself. The body was decomposed when found, so he could not state the cause of death.

All I have now is a few moulted tail feathers and the ring to remind me of the fullest picture I have had of a bird and its life, carefree and untrammelled. She taught me more about birds than any book possibly could, and I hope that this short sketch of two happy years will interest other bird lovers. As I stand in the garden on sunny mornings even now, four years later, her memory is so vivid that I still half expect to hear a cheerful low squawk of greeting, to turn and find her sitting expectantly nearby, ready to sit on my shoulder, to nibble my ear, or gently pull my hair as she so often did in those blessed days when she was with us.

BRITISH AVICULTURISTS' CLUB

The thirty-third meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 14th May, 1952, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss K. Bonner, T. Crewes, A. H. D'Aeth, W. T. Dring, B. H. Dulanty, A. Ezra (Patron), J. F. M. Floyd, J. C. Garratt, T. Goodwin, H. J. Harman, H. J. Indge, F. E. B. Johnson, Miss E. M. Knobel (Club Hostess), Miss M. H. Knobel-Harman, J. W. Lester, D. R. Lovell, P. H. Maxwell, G. S. Mottershead, S. Murray, K. A. Norris, A. A. Prestwich, J. H. Reay, R. C. J. Sawyer, J. L. Sears, E. N. T. Vane, C. H. Wastell, H. Wilmot.

Guests : J. Bailey, Prince Dharmakumarsinhji of Bhavnagar, Mrs. D. Carson-Roberts, Mrs. W. T. Dring, Mrs. J. C. Garratt, Mrs. C. Grimme, Miss S. Indge, Mrs. J. W. Lester, F. W. Luck, Mrs. S. Murray, Dr. D. W. Seth-Smith, Mrs. H. Wilmot.

Members of the Club, 29 ; guests, 12 ; total, 41.

Prince Dharmakumarsinhji gave an informative account of his unique success, the breeding of a young Bird of Paradise, *Paradisea augustævictoriae*.

E. N. T. Vane protested against the lamentable conditions under which many birds, especially Indian Ring-necks, were being imported. B. H. Dulanty agreed they were deplorable and expressed the view that they will improve as the novelty of unrestricted importation wears off.

W. T. Dring said the wholesale use of certain weed-killing sprays appeared to be having a disastrous effect on the rearing of wild nestlings. J. C. Garratt, J. L. Sears, and J. F. M. Floyd gave their experiences.

Miss E. M. Knobel exhibited her White-crested Cockatoo (*K. alba*).

The next meeting of the Club is on **10th September, 1952.**

ARTHUR A. PRESTWICH,

Hon. Secretary.

* * *

NEWS AND VIEWS

The Society's proposed visit to the Antwerp Zoo has been cancelled. Public demand for passage on the night boat has been so great it is impossible to secure first class reservations.

* * *

Dr. Edward Hindle, lately Scientific Director, Zoological Society of London, has been appointed an Honorary Secretary of the Royal Geographical Society.

At the Annual Meeting of the Royal Society for the Protection of Birds held in London on 31st March, 1952, Miss Phyllis Barclay-Smith was presented with the Silver Medal of the Society in recognition of her work for bird protection, especially in the international field.

* * *

L. C. Webber, N.S.W., reports an unusual incident. A Bourke Parrakeet took over a Zebra Finch nest-box. The Finches went back and made a nest in the upper portion of the original nest, and both pairs of birds are now sitting in the same box.

* * *

D. A. Munro and R. H. McKay, of the Canadian Wild Life Service, trapped five of the one hundred Trumpeter Swans wintering on Lonesome Lake, B.C. The Swans have been sent to Her Majesty Queen Elizabeth and the Duke of Edinburgh as a memento of the Royal visit to British Columbia last October.

* * *

J. P. C. van Wachem, Hilversum, Holland, writes: "In the summer, 1951, I had in my aviary among other birds one male Green Avadavat and one female Golden-breasted Waxbill. These two birds paired and produced two young ones. One of these youngsters bears a striking resemblance to the Green Avadavat, and the other shows all the characteristics of the hybrid of a Golden-breasted Waxbill and a (common) Avadavat."

* * *

R. A. Scott, Waratah, N.S.W., describes a visit he made with Len Webber to Dr. R. B. Brown. He writes: "Dr. Brown possesses probably 90 per cent of the Tanagers alive in Australia, close on thirty Scarlets (including about ten young) also a few Magpies and Blacks, all of which have been bred by their owner. We saw the survivor of the two young Regent Bower Birds pictured in the AVICULTURAL MAGAZINE, 1951, 94. The young cock died but the hen is in perfect fettle and at the time was building. Unfortunately she attacked and almost blinded her mate and naturally the Doctor does not feel like risking his other cock with her in case the same fate befalls him. A pair of Glossy Starlings, a few Cardinals, Weavers, two Javas, and about a dozen Satin Bower Birds complete the collection."

A. A. P.

* * *

LONDON ZOO NOTES

By JOHN YEALLAND

The spring nesting has commenced and the old breeding pair of New Zealand Sheld-duck has launched a brood of nine.

The Cornish Choughs which have laid in previous years have two eggs, and many of the regular breeders among the pheasants and waterfowl are now nesting.

The Fraser's Eagle-Owl and Emu eggs proved to be infertile, but the Great Eagle-Owls have three young ones.

New arrivals include a fine pair of Great Condors (*Vultur gryphus*) ; two young Chilean Eagles (*Geranoetus melanoleucus*) ; a Red-tailed Buzzard—the western form *Buteo borealis calurus*—a pair of Bronzy Sunbirds (*Nectarinia kilimensis*) ; three Kenya Double-collared Sunbirds (*Cinnyris m. mediocris*) ; two more of the Scarlet-tufted Malachite Sunbirds which, being new to aviculture, will be described later, and a Juba Purple-banded Sunbird (*Cinnyris bifasciatus chalcomelas*)—a sub-species new to the collection.

Two tame British birds, a Lesser Whitethroat (*Sylvia c. curruca*) and a Nightingale (*Luscinia m. megarhyncha*) have been presented.

Dr. Windecker, on his way from Recife to Dusseldorf with a fine collection of Brazilian birds, which included some sixty Humming Birds, very kindly presented two Pygmy Hermit (*Phæthornis r. ruber*) ; three Blue-breasted Sapphire (*Chlorestes n. notatus*) and one which appears to be *Hylocharis lactea* ; also one Superb Manakin (*Chiroxiphia p. pareola*) and a pair of Yellow-winged Sugar-birds (*Cyanerpes cyaneus*).

A pair of Greater Patagonian Conures (*Cyanoliseus byroni*) have been deposited. This is one of the most handsome of all the Conures, and one not seen in this country for a very long time.

* * *

REVIEWS

LONGMANS FIELD HANDBOOKS. COMMON BIRDS OF THE BUSH. COMMON BIRDS OF THE CAPE. By J. M. WINTERBOTTOM. Messrs. Longmans Green and Co., Ltd., Cape Town, South Africa. Price 5s. each.

In his foreword the author states that the aim of the books is to enable the beginner to get a start by identifying a comparatively small number of really common birds in his own neighbourhood. The compact and clearly written volumes should certainly achieve this end, and be an invaluable aid to those who are beginning to watch birds. At the start of each book is a section "Helpful points to identification," with the different species listed under headings such as "Birds with noticeably long tails", "Birds with long legs", "Birds chiefly

metallic green, blue, black, or purple". A map of the area dealt with shaded to show where all the birds mentioned are common or may be found, and where 75 per cent are to be found, is also provided. In the description of each bird reference to Dr. Austin Robert's *Birds of South Africa* is given, and suggestions made for ornithological works for further reading. The English and Latin names of each species are included, and a list of vernacular names added which will be of special assistance to visitors to the Union. There are a number of black and white drawings and four colour plates in each book.

Further books in this useful series are awaited with interest.

P. B-S.

VOGELVOLK AUF WEITER REISE (BIRD FOLK ON FAR JOURNEYS). By ROLF DIRCKSEN. C. Bertelsmann Verlag, Gütersloh, Germany. Price 9.80 DM.

The migration of birds has always been an entrancing subject, and Rolf Dirksen's delightful and comprehensive book, *Bird Folk on Far Journeys*, does it full justice. Written in a readable and vivacious style, the book contains an enormous amount of information. Mr. Dirksen is a first-rate field observer; from a child he was fascinated by bird migration which he watched from his home on the North Sea, and during later years he had opportunity of pursuing his study of the subject in many different places.

The author opens with a chapter expounding the wonder of bird migration and continues with a detailed description of the various methods of catching and ringing birds, how recoveries are reported, and so on. Full accounts of behaviour on migration, routes, etc., of many different species are given, ranging from Storks to Goldcrests. The author then discusses many aspects of bird migration such as height of flight on migration, dangers en route, orientation, whether knowledge of routes is inherited, the origin of migration, and many other points. He also gives a description of the German bird observatories and notes on migration in North Asia, Japan, and America.

The book is profusely illustrated with 36 maps and 93 magnificent photographs, of which 10 are by Eric Hosking. A most entrancing series of three photographs show how a nesting Oystercatcher is caught and ringed by placing a wire trap over the eggs, which the bird, nothing daunted, calmly enters and broods the eggs, apparently quite content to be surrounded by a wire enclosure! Even those who cannot read German will wish to possess this book for its many beautiful photographs.

P. B-S.

STALKING BIRDS WITH COLOR CAMERA. By Dr. ARTHUR A. ALLEN, Professor of Ornithology at Cornell University; edited by GILBERT GROSVENOR, President, National Geographic Society. Washington, D.C.: National Geographic Society, 329 pages, 1951. \$7.50.

On rare occasions a birdbook will reach this reviewer's desk about the merits of which he can wax genuinely enthusiastic—without running the risk of indulging in overpraise. Dr. Allen's latest publication is such a work. It offers the bird-loving public coloured illustrations of such excellent quality and in such profusion that it cannot help being amazed at the author's patience and ingenuity—and great success over the years. Assuredly, this exceptionally handsome volume is eloquent testimony to Dr. Allen's profound interest in, and lively enthusiasm for, his very difficult and trying task.

Three hundred and thirty-one illustrations in natural colours depicting two hundred and sixty-six species of North American birds, and numerous supplementary coloured as well as black-and-white pictures, many of them occupying half and full pages, constitute the bulk of this book—and such attractive and alluring bulk!

The twelve text chapters relate in a lively personal-experience style of writing important aspects of modern colour photography as they are met with in the field of operation. They supplement, appropriately, the illustrative portions of the work, greatly enhancing their value to the reader. All this profusion of material has been arranged artistically and reproduced faithfully. Many a reader will wonder how so much beauty in natural colours—beauty about birds—can be offered at so reasonable a price. Any lover of fine bird books will treasure *Stalking Birds with Color Camera* as one of his truly valuable possessions.

CARL NAETHER.

* * *

NOTES

MY ROSENBERG'S LORIKEET (*Trichoglossus rosenbergii*)

I have recently acquired a young specimen from Mr. W. J. C. Frost. Its habitat is Mysore Island, off the Bay of Geelvink, north coast of Papua. It is a very lovely and lively bird. I feed it on Mellins' Food, on Allenburys Baby Food, dates, honey, and condensed milk. I keep a bath in its cage because all Lorys are liable to mess their plumage owing to their liquid diet. I once had a very old bird of this species which died in the Parrot House, Regent's Park, in the war year of 1943. This species is represented in the birdroom of the Natural History Museum, London, by two specimens. My old bird is in the Royal Albert Memorial Museum, Exeter, Devon. The British Museum Catalogue of Birds, volume xx, gives this description of Rosenberg's Lorikeet: Adult: back, wings, and tail green; head blue, towards the occiput purple; a narrow red band on the occiput; another yellowish-green band, sometimes mingled with red, on the nape; interscapular feathers with concealed red bands; breast and lower abdomen red, with dark blue bands on the edges of the feathers; middle of the abdomen dark blue; flanks yellowish green, with dark green bands; under tail-coverts yellowish green, with green spots at the tip; under wing coverts and quills at the base of the inner web, red; inner web of the lateral tail-feathers yellowish green; bill orange-red; feet dark. Total length 11 inches; wing 4.80; tail 4.12; bill 0.85; tarsus 0.65.

P. H. MAXWELL.

THE AVICULTURAL SOCIETY RECEIPTS AND PAYMENTS ACCOUNT

Year ended 31st December, 1951.

RECEIPTS				PAYMENTS			
	£	s.	d.		£	s.	d.
To Balance at Bank, 1st January, 1951	205	4	5	By Printing of Magazine	736	10	3
Ordinary subscriptions				" Coloured plates	112	19	2
Arrears	15	0	0	" Sundry printing and stationery	93	5	5
Current	653	8	6	" Printing <i>Australian Parrots in Captivity</i>	123	11	6
In advance	94	13	1	" Printer's charges and expenses	10	1	3
Life membership subscription				" Honorarium to Editor	100	0	0
Avicultural Society of America, sub- scriptions	15	0	0	" Preparation of Index	10	10	0
Donations	246	8	4	" Newman Library, insurance	2	5	0
Sales of Magazines	47	5	11	" Advertisements	15	0	0
Sales of <i>Aviculture</i>	43	12	2	" Expenses at Council Meetings	5	9	6
Sales of surplus books	23	14	3	" Purchase of Defence Bonds	105	0	0
Sales of plates	688	10	0	" Legal expenses	5	10	0
Sales of waterfowl rings	28	14	8	" Bank charges	30	17	3
Sales of Christmas cards	19	9		" Postages	9	17	7
Sales of <i>Australian Parrots in Captivity</i>	22	11	6	" Miscellaneous expenditure			
Members' advertisements	20	0	6		1,361	6	3
Dividends	2	5	3	" Balance at Bank, 31st December, 1951	751	18	4
	5	16	3				
	£2,113	4	7		£2,113	4	7

I have examined the above Account with the books and vouchers of the Society and certify it to be in accordance therewith. I have verified the Bank Balance.

LONDON.
25th February, 1952.
J. WATKIN RICHARDS, }
Certified Accountant, } Hon. Auditor.

CANDIDATES FOR ELECTION

- Dr. GEORGE A. ALLEN, 1328 Allen Park Drive, Salt Lake City, Utah, U.S.A. Proposed by Calvin D. Wilson.
- Mrs. ENID M. AMMANN, Chez Ernest, Royal Oak Vancouver Island, B.C., Canada. Proposed by A. A. Prestwich.
- Fr. ARRAS, Chaussée d'Anvers 50, Lierre, Belgium. Proposed by Colonel J. Dufour.
- L. W. CARSEY, 65 West Stratford Avenue, Salt Lake City, Utah, U.S.A. Proposed by Boyd Shaffer.
- D. P. CAULKINS, c/o Bankers Trust Co., 16 Wall Street, New York 15, N.Y., U.S.A. Proposed by Dr. S. Dillon Ripley.
- Mrs. I. W. JEFFREY, 9 Mount Pleasant Crescent, Hastings, Sussex. Proposed by Major C. P. H. Seaton.
- A. E. KEEF, Avondale, Springfield Lane, Broadway, Worcs. Proposed by P. W. Teague.
- S. W. LAND, 841 St. Helens Road, Over Hulton, Bolton, Lancs. Proposed by Miss K. Bonner.
- Mrs. F. G. MITCHELL, Clapton Manor, Kettering, Northants. Proposed by A. F. Moody.
- P. B. PARTRIDGE, 164 Waverley Avenue, Twickenham, Middx. Proposed by Miss E. M. Knobel.
- C. J. RYAN, 515 Madison Avenue, New York 22, N.Y., U.S.A. Proposed by Dr. S. Dillon Ripley.
- W. E. SHELTON, "Elgar," St. John's Road, Newbold, Chesterfield. Proposed by Miss K. Bonner.
- T. SPENCE, M.R.C.V.S., Kincraigie, Send Hill, Send, Woking, Surrey. Proposed by J. Yealland.
- S. H. STEVENS, Ivydene, Copse Lane, Freshwater, Isle of Wight. Proposed by Miss K. Bonner.
- R. STONE, 612 Romford Road, Manor Park, E. 12. Proposed by H. J. Harman.
- Miss BRITT-MARIE SUNDSTRÖM, Östra Larmgatan 3, Gothenburg, Sweden. Proposed by E. J. Boosey.
- J. N. THEAKER, The Grove, Swadlincote, Nr. Burton-on-Trent. Proposed by Miss K. Bonner.
- S. THEUNISSEN, 19 Mc.Ghee Street, Sale, Victoria, Australia. Proposed by F. H. Rudkin, Sr.
- J. WALLACE, Saltoun Fur Farm, Pencaitland, East Lothian. Proposed by D. Salteri.
- K. V. WHITSON, 9 Haig Avenue, Queenstown, South Africa. Proposed by Miss K. Bonner.
- A. J. WILKINS, 68 Woodside Avenue, Coventry. Proposed by C. M. Payne.
- G. WORTHEN, 7500 West 2700 So. Street, Magna, Utah, U.S.A. Proposed by Boyd Shaffer.

NEW MEMBERS

The forty Candidates for Election, proposed in the March-April, 1952, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

CORRECTED NAME AND ADDRESS

J. P. NEWELL, 4 Pearse Street, Athlone, Ireland.

CHANGES OF ADDRESS

- R. BEST, to Montclare, Furze Hill Road, Torquay.
- R. GODELMAN, to Murcocks Farm, Fryerning, Ingatestone, Essex.
- C. F. HARDING, to Brooklyn Stores, Otago Terrace, Larkhall, Bath.
- W. NICHOLSON, to 15 Neville Road, Darlington.
- R. A. SCOTT, to 19 Asher Street, Waratah, N.S.W., Australia.
- P. W. TEAGUE, to c/o The Red House, 10 Stockton Hill, Dawlish, Devon.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

FOR SALE

AVICULTURAL MAGAZINE, 1928-1949, bound; 1950-1951, in parts. In perfect condition.—Offers to Miss M. H. KNOBEL-HARMAN, 19 Connaught Square, London, W. 2.

WANTED

Cayley's *Australian Finches in Bush and Aviary*; other books dealing with these finches; also books on Grass Parrakeets, Lovebirds, Parrotlets, and back numbers AVICULTURAL MAGAZINE.—Offers to JOSEPH GRAY, Braemar, Dryburn Road, Durham Moor, Durham.

FOR EXCHANGE

One hundred and ninety copies of the *Field* magazine; from January, 1943, to February, 1946, and December, 1949, to July, 1950. Exchange for any birds.—D. WOODWARD, 86 Stanstead Road, Hoddesdon, Herts.

AUSTRALIAN PARROTS IN CAPTIVITY

A series of articles by Alan Lendon published in the Avicultural Magazine. A full account of 60 species of Australian Parrots is included in the book which deals where possible with the author's personal experiences in keeping them in captivity in South Australia.

There are one coloured and seven photographic plates. Stiff paper cover. Price 7s. 10d., post free. Published by the Avicultural Society, and obtainable from the Hon. Secretary, 61 Chase Road, Oakwood, London, N. 14.

AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

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ROCK SCENERY, PIANA, CORSICA.



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GULF OF PORTO, CORSICA.

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JULY-AUGUST, 1952

A VISIT TO CORSICA IN 1951

By C. S. WEBB (London, England)

Corsica needs no introduction as an island of beauty. In April and May it is particularly lovely with flowering *Cistus* (rock roses) dominating the landscape and giving off a delicate fragrance that seems to linger in one's nostrils long after leaving the island.

The north-west coastal region, with its mountains and streams, and rocky shores studded here and there with delightful sandy beaches, can compare with anything of the kind anywhere in the world. Combined with this natural beauty there is an air of peacefulness which makes Corsica the ideal place for escape from the hectic life of our cities.

The island—steeped in Napoleonic tradition—is blessed with a salubrious climate and is lapped by the clear waters of the Mediterranean, which yield enormous quantities of lobsters for shipment to the Riviera and France. The other more or less natural wealth comes from olives, chestnuts, and goats. For a long period under Genoese domination, the Corsicans still speak an Italian patois among themselves, but quickly revert to French when discoursing with tourists and other foreign elements. One of the great charms of the island is its sparse population (away from the few towns) and the opportunities one has of lying on some delightful deserted beach being pickled in the sun, while gazing on some distant snow-capped mountain.

Corsica is nowadays within easy reach of London, as within a few hours of London Airport one can be at Nice, from where it is a simple matter to do the hundred mile voyage by sea or plane to one of several points on the island. Periodically a boat goes direct from Nice to Calvi, which is worth linking up with as this lands one at a renowned beauty spot. Calvi's quaint and picturesque harbour is dominated by an old Genoese fort and a delightful sandy beach fringed with pine trees stretches for miles. As a background to this there are *Cistus*-covered hills and distant snow caps.

The birds of Corsica are fairly numerous if one includes the large

variety of winter visitors which nearly all disappear by late April and May. There are also a number of migrants from Africa which use the island merely as a halting place, and after a few days move to the mainland to breed. There are, however, a few migrants from Africa which spend the summer in Corsica. The resident birds are very interesting, though many of them are merely geographical races of well-known British and Continental species. When sub-specification is based on such things as greater or lesser wing measurement, such differences can hardly be apparent in the field, but there are quite a number of Corsican birds which can be seen to differ considerably at first glance from the same species inhabiting our own shores. Of these the Common Jay and some of the Tits are the most noticeable.

Spring in Corsica in the year 1951, as elsewhere in Europe, was late in arriving; the local inhabitants reckoned it to be one of the coldest in living memory. For this reason there were few signs of breeding activities in early May.

Almost certainly the first land birds to be seen will be Goldfinches, as these frequent the trees lining the main street of Calvi, and in fact are the commonest birds in the island. In any open places they are particularly numerous and can often be seen feeding in company with Citril Finches (*Spinus citrinella*) which are also very plentiful. The latter are no less striking than goldfinches and remind one somewhat of the Cape Canary.

Warblers are most interesting though difficult to identify in the thick scrub until one has become familiar with them. Perhaps the most numerous is the Sardinian Warbler (*Sylvia melanocephala*) which is resident. This bird, with its black cap, can be confused with the Black-cap Warbler (*S. atricapilla*)—also numerous—but its white underparts are the best distinguishing feature in the field. I had momentary glimpses of many warblers that I was unable to identify with certainty, but on a few occasions got a clear view of the Dartford Warbler (*S. undata*) and Marmora's Warbler (*S. sarda*) and, of course, the Lesser Whitethroat. While collecting Savigny's Tree Frogs in the swamps near Calvi, I frequently heard the lively song of Cetti's Warbler (*Cettia cetti*) which is plentiful though not easy to see. It gives vent to its song as a rule from the middle of a dense thicket bordering the swamps.

Of the Turdidæ, Blackbirds are seen sparingly in spring and are among the few that remain to breed. In winter they are so numerous that "Chasse aux merles" is one of the local sports. No thrushes were encountered though these also are common winter visitors. To me the most interesting of this family were the Blue Rock Thrushes (*Monticola solitarius*). Corsica is very rich in rock scenery and at Piana the landscape with its deep ravines and eroded rocks of fantastic

shapes is a wonderful setting for these birds. It is a common sight to see a solitary specimen perched motionless for a long period on some prominent boulder.

The most prevalent birds in this locality were Crag Martins (*Riparia rupestris*) some of which were nesting. Elsewhere, in certain open situations where there were low bushes and grass, Stonechats were seen, but they do not remain at low altitudes for long in the spring ; as the weather gets warmer they go higher to breed.

On the hillside at Calvi Hoopoes were fairly common and could be heard on all sides. In this locality, there were also Golden Orioles. I saw European Bee-eaters only once at Calvi, but further west on the road to Ajaccio they were fairly numerous, sitting on the telegraph wires and occasionally hawking flying insects.

The local Sparrow—common in the towns—is the Italian species (*Passer italiae*) which differs from *P. domesticus* by its chestnut upper parts, including the nape and the crown, and by its apparently whiter cheeks and ear coverts. Other common seed-eaters are the Greenfinch and Chaffinch.

I never saw the European Starling, though it is a common winter visitor. I understand they move northwards in February or March. The Unicolor Starling (*S. unicolor*) is resident, and I saw quite a few at Calvi, though not in flocks.

The Hooded Crow (*C. cornix sardinus*) is common and resident, and is a conspicuous bird in open coastal regions. Carrion Crows were also seen, and at Calvi about a mile from the town on the municipal garbage heap I had the satisfaction of seeing the two species together. The sight was certainly a memorable one for here in one large assembly were dogs, pigs, fowls, Carrion and Hooded Crows, all feeding happily within a few feet of one another. I cannot say if Carrion Crows breed in Corsica—they are supposed to be merely winter visitors—but they were there on 12th May. It is supposed to be the rule that where these two species overlap they interbreed, so in Corsica there is either an exception to this rule or else the Carrion Crows I saw were late in departing. When not feeding the two species kept apart. As already pointed out, the season was one of the latest in living memory, so perhaps this occurrence has no significance. Ravens were also seen and are apparently resident, though not numerous.

Shrikes are fairly plentiful in open country, the commonest being the Red-backed Shrike (*Lanius collurio*) though the Woodchat Shrike (*L. senator*) is conspicuous in certain localities. Both these could be seen perched on bushes waiting to pounce on grasshoppers, etc.

The Spotted Flycatcher (*Muscicapa striata*) is in fair numbers and appears to be resident whereas the Pied Flycatcher (*M. hypoleuca*) seen in late April seemed to have disappeared by the second week

in May. In the mountain forests around Vizzavona, the highest point reached by the railway that traverses the island from Ajaccio to Bastia, a race of the Common Wren is fairly plentiful. Here in the pine trees Tits were very noticeable and included the Great, Blue and Coal Tits. Up here the snow-covered mountains seemed only a few hundred feet above us and the nights were bitterly cold. The only Woodpecker seen was the Great Spotted.

One of the most delightful places in Corsica is the village of Porto, situated among magnificent mountain scenery alongside a rocky stream and less than a mile from the sea. Here the Crag Martin was very numerous, and as already mentioned was nesting a few miles away up on the rocks of Piana. Occasionally at Porto one saw in a single congregation Crag Martins, White-bellied or Alpine Swifts (*Micropus melba*) and House Martins, all whirling through the air together catching insects.

Rock Doves (*Columba livia*) were numerous here and could often be seen swooping down into ravines in small flocks—their white rumps being very conspicuous.

Birds of prey were in evidence, especially in more open situations bordering steep woody or rocky hills. A race of the Common Buzzard was noticeable at Calvi and when in flight seemed nearly always to be mobbed by Hooded Crows. Kestrels and Common Kites were also plentiful here. In the bay at Calvi Herring Gulls were much in evidence though other sea birds were scarce. On one occasion I saw six Shags together.

To see anything like the total number of resident or visiting birds in Corsica, one would have to travel a much wider field than was possible on a short holiday, as the country is of considerable size and varies tremendously. Down the east coast there is a long line of lakes and swamps which abound in waterfowl and waders, etc., but I had no time to visit these.

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PSITTACORIAL II

MANYCOLOURS—COCCIDIOSIS—SULPHA DRUGS—
 AVIARY SITES—FERTILITY—VARYING THE DIET—
 BREEDING AGE—CONJUNCTIVITIS—CONCUSSION—
 LUTINOS—COCKATIELS

By E. N. T. VANE (Great Missenden, Bucks, England)

Last year a few notes were contributed under the above heading in the hope that they might interest other keepers of Parrot-like birds. From subsequent conversations at meetings and elsewhere it is evident that some members have at least read them. I am therefore prompted to offer a few more, particularly so when our Secretary in his recent most valuable book on *Parrot Breeding Records* goes so far as to state on at least two occasions "bred by Vane . . . but not recorded" as there are one or two other instances which he has not heard about even yet. In passing, the first observation I would like to make is that in the early days of the AVICULTURAL MAGAZINE almost any opinion expressed in one issue was certain to be refuted, contested, or ridiculed in the correspondence columns of the subsequent number by more than one reader. Is it laziness that leaves our correspondence section so inert? Probably to-day it would be rephrased as apathetic lethargy or lethargic apathy.

During the post-war years Manycolours have done very well in my aviaries, yet they were once regarded as a hopeless proposition for breeding or even keeping alive. Lord Tavistock's book reports that they are subject to septicæmia and septic fever in certain districts and hopeless to keep alive. This was, of course, written many years ago and, taken in conjunction with the phrase "in certain districts", I feel confident that these two diseases were, in fact, only some form of what to-day is called cæcal coccidiosis. This is deadly enough, but in domestic poultry scientific research has discovered that it can be controlled or neutralized by the use of sulpha drugs.

This brings us to two interesting items for consideration. First, the use of these drugs for aviary birds and, secondly, the question of moveable flights. Again, in my opinion we come up against the individual bird. In literature published on coccidiosis there are many conflicting statements and theories put forward. With different birds kept under identical conditions some appear to be immune to disease, others are particularly susceptible, some victims are quite unable to resist the disease whilst others respond very rapidly to sulpha drug treatment. Very briefly, the coccidia start their life cycle in one bird from which they must emerge into the open air before being picked up by another bird which becomes its host in its lethal stage. It may be accepted that coccidiosis is very prevalent in poultry and also in wild birds, consequently it is easily spread and may occur in any

aviary at any time, the objective therefore is to try and make one's stock immune to infection.

Immunity can be achieved under certain conditions by the use of sulphamezathine. For the drug to be effective it is necessary that the birds under treatment be actually infected, as it is the coccidia themselves that develop the immunity *not the drug or the bird*. Moreover, the use of the drug on an uninfected bird may result in the individual developing a resistance to the beneficial effect of the drug if and when the coccidia eventually do enter the bird's system.

Correct diagnosis is consequently of exceptional importance, the only reliable method being by microscopic examination of the excreta in a laboratory. Even this is not infallible as I am informed that under certain stages of development it is possible to obtain a negative result from an infected case. One reads that the symptoms to look for are general debility and mopiness, diarrhoea, and even blood discharge in the droppings. I should imagine that any such case would be beyond treatment. Paralysis of the lower limbs is also an indication, and a sufferer is not always too far gone in this condition. Obviously, this is really a case of "look before you leap" being equally as true as "he who hesitates is lost"; you are bound to be wrong whatever you do. Personally, whenever a possibility of coccidiosis is suspected I revert to using the drug before the patient becomes so ill that one is going to lose it anyhow. But at the same time, the indiscriminate use of the drug as a precautionary measure is both dangerous and useless.

Treatment consists of simply administering sulphamezathine in the drinking water. A 16 per cent solution can be obtained which is mixed with the ordinary water in the proportion of 2 fluid ounces to the gallon, or in smaller quantities this is equivalent to 1 drachm to half a pint. The patient must not have access to any other source of drinking water whilst being dosed, and the period lasts for five days and no longer or the metabolism of the bird may be unbalanced. The patient must obviously be housed indoors whilst being treated or it would be able to drink rain water or even dew. If no improvement is achieved from the first dose the process may be repeated after an interval of ten days or so. Apparently, some individuals develop an immunity naturally; a situation might therefore arise where a healthy bird to all outward appearances is supplied with a succession of companions which die off, whilst the original inmate remains in the best of health. Before leaving this subject I should mention that Sulphamezathine is a registered name by Imperial Chemicals, and the full title of the drug is sulphadimethylpyrimidine, which may be procurable under other trade names for all I know.

The second point that I referred to as of interest concerns moveable flights. The advantage claimed for this method is mainly that it gives

an opportunity for the soil to be rested and disinfected. It appears to me that this is quite useless as a means of preventing a disease such as the deadly scourge now being considered, since we know it is carried extensively by wild birds. The coccidia can travel in the earth by many means, such as earthworms, mice, attendants' boots, etc., moreover, many of my aviaries and many others known to me have been in constant use on the same site for fifteen years. During that period no epidemic of any kind has carried off a large batch of birds at a sweep. There have, of course, been losses, many more than I like to have, but never a wholesale epidemic among parakeets. I can recall one occasion about five years ago when a P.M. report found coccidiosis, and the suggestion was put to me that I should send samples of the droppings of all the birds for test at 2s. 6d. a time. Well, I had over 400 birds just then, so I did not take advantage of the offer, and there were no other losses either. As I had Manycolours at the time and they were reputed to be one of the most susceptible species to septic illnesses I have come to the conclusion that it is not necessary to move the flights and no useful purpose is achieved by doing so. Every spring, however, the turf is replaced with entirely new meadow turf and the ground is forked over and dressed with agricultural salt, lime. Since I heard about ammonia as an effective antidote for coccidia, the ground has also been watered with a solution before laying the new turf. Whilst this operation is in progress each pair of birds is shut in the shelter for a few hours only and come out to a new flight with fresh grass, perches, and the nest-boxes overhauled and refilled. I am informed that the most efficient disinfectant for washing down shelters, perches, etc., is ordinary ammonia. With this treatment the stock appears to be as healthy and fertile as ever.

Mention of fertility in conjunction with sulpha drugs brings up another problem. It has been suggested that the use of these drugs may affect fertility for a considerable period. Another good reason to be very careful not to make indiscriminate use of them. Coccidia are apparently most active in moist and warm surroundings, excessive cold may increase mortality among them, but it is not necessarily going to eradicate them completely. In fact, one would expect the most favourable periods to be a wet summer or warm autumn, and this is generally found to be the most vulnerable time when unexpected losses do actually occur in the aviary, at least in my experience. I have not noticed any depreciation in the fertility of any birds treated with sulpha drugs, but having had this point always in mind I have always avoided its use after December except in real emergency. Fortunately the ensuing months are usually so cold that the coccidia appear to be at least dormant, if present. I do recall, however, that when an exceptionally mild February has been encountered this is

usually the season in which the most unexpected tragedies occur and the results are comparatively disappointing from a breeding viewpoint. Maybe there is some connection, or maybe it is just a coincidence.

My Manycolours have led me into deep waters and a long way off the original course. Let us go back to them for another little item of interest, somewhat elementary after the heavy going above. I am often asked by beginners what mixture I use to feed my birds. Strange as it may appear, I blend my seed as it is used every day, the reason being that in my opinion the birds like a change, so an effort is made to vary the diet to some extent ; it should also vary with the season, too. Naturally, the individuality of each bird is a very important factor here. Some will only select the particular seed to which they are partial ; some, like children who elect to feed on chocolate and ice cream, might choose to live on nothing but, say, hemp. For that reason I have discontinued the practice of supplying different seeds in different dishes, the majority of individuals did not partake of a balanced diet but hogged their preferences. It surprised a lot of bird-keepers during the war to find that their birds, accustomed to the best super-Spanish canary, three or four varieties of sunflower, hemp, etc., could not only keep alive but could keep in remarkably good condition and even breed good youngsters on a mixture of third-rate oat screenings, unmillable wheat, buckwheat, and occasionally a " blitzed monkey nut " as a special treat, supplemented very rarely with a teaspoonful of canary (with the usual percentage of mice dirt) or dusty sunflower. I can recall how all these seeds were mixed up and almost counted out, the poor birds selected the sunflower and canary first and only turned to the substitutes when hunger forced them. For this reason it became necessary only to feed on alternate days so that the less palatable seeds were not used at all. With the memory of those days, I did not mind making up my mixture and varying it from week to week, even making slight adjustments for individual pairs in order to keep them in top condition.

All the Psephotus Parrakeets need more canary than the larger broadtails for instance. Some people are very doubtful about the use of hemp. In my opinion it is a wonderful seed ; it certainly increases fertility and fecundity but, of course, it is an oily and consequently heating food. One hen Manycolour that I had—she died about a year ago when she was quite twenty years old—made a habit of plucking her chest and belly absolutely bare when the breeding season came along. When she came to me she was in a half-naked state and I was told she was pretty well useless. I used to give her all the hemp she liked to take, much of it being sprouted ; she was in an outdoor flight and when the moulting season came round she regained her plumage fully and was duly mated the following spring. For many years she reared families every season, every one

of the youngsters was perfect and none ever inherited the vice, and to-day I still have some of her children and grandchildren. In spite of the generous supply of hemp the cock never suffered any ill effects, and although the hen always plucked herself at nesting time, she always moulted out well in the late summer and remained well covered during the winter. I would never hesitate to give hemp to practically any birds rearing a family; the only times it should be rationed strictly is in the hot weather when no breeding is going on with that particular pair. Sprouted wheat and hemp are beneficial at all times in reasonable quantities. Oats should be rationed in hot weather, but do no harm in the winter. Similarly, I believe buckwheat is a very good food, although some Budgerigars' deaths were attributed to impacted crops when it used to be their mainstay for lack of better. The chief thing is to encourage any bird to consume as much green food as possible, the only time this should be limited or withheld is during frosty weather. Plucked or cut green food is a very different proposition to green food actually growing in the ground, and mention of this is made only because so many people turn round and ask why wild birds do not get enteritis through eating frozen green food.

Another rather elementary question frequently asked by anyone taking an interest in a fresh species is "How old are the birds when they start breeding and how soon are they given a nest-box?". With Manycolours my boxes are never shut up; the birds generally show an inclination to start very early, probably before February is out. Closing the boxes seems to have no effect on the enthusiasm of a cock broadtail, it only makes him bad tempered and he takes it out of the poor hen as though it was all her fault. The drawback to allowing early nesting is that Manycolours are inclined to stop brooding the young at an early stage, frequently they are only ten days old when the hen starts to leave them unbrooded at night; this, of course, varies considerably with individuals; therefore if the nights in April turn cold you stand a very good chance of losing the clutch, especially if it is a small one of two or three; nevertheless, I generally take that chance. I have never lost a Manycolour egg-bound so there is little fear of that. I always keep a few of those small flat paraffin heaters, and if a cold spell was met with just when it was most inconvenient, I would in such an unfortunate occurrence put one underneath the nest-box, as it might help.

Some of my best young Manycolours were reared by a year-old cock mated to a two-year-old hen. They only had one clutch of three, but they were the brightest and largest ever reared by any of my birds. The majority of the pairs I have had were double-brooded but not all of them are. Possibly age has some bearing on this, young birds go to nest a little later than fully adult ones, which is probably a very good thing. Older birds have nearly always had two clutches

and have been prepared to try a third ; this is a case where it would be advisable to cover the nest-hole up. No bird I have kept has been more insistent on using their particular nest-box, and if it is ever necessary to change their quarters, always try to keep the same box for their use. The old hen who used to pluck herself always *would* use a old rotten log which was patched up and filled with old nails and wire to hold it together, yet she had the choice of three lovely solid boxes. When one year the old log was removed she refused to go to nest at all until it was returned, when she was inside within a few seconds of my getting out of the flight. On the other hand, one pair I have have never attempted a second brood even when the first one was hatched in March ; they are now three years old. A further illustration of the idiosyncrasy of a parrakeet. Most broods contain three or four youngsters with all the birds I have had, and they seldom lose them except in the instance quoted where they have gone to nest early and been unfortunate with weather conditions.

One thing leads to another when talking about birds. A disease which sometimes affects the Psephotus Parrakeets is conjunctivitis in some form. Probably several different forms are encountered, but all are generally regarded by bird-keepers as " eye disease ". The most susceptible subjects are Grass Parrakeets and Polyteline, although many others are affected at times. Hitherto it has invariably eventually proved fatal, in spite of some victims lingering for months. The chances of importing Neophema by boat without catching this highly-infectious complaint were regarded as about fifty-fifty. The cause was attributed to overcrowding and filth—unclean perches in particular. It is my theory that the main cause was mishandling of the bird, and that dirt is only an auxiliary factor. Eye disease is encountered in the natural state of liberty, and an instance is quoted in the AVICULTURAL MAGAZINE, 1932, the interesting theory being submitted that the conditions of drought which had been experienced for some years were followed by severe sand storms which had most probably irritated the eyes of the birds.

I kept this in mind when some years ago I had a cock Turquoise and two Bourkes for whom I had no mates, and could not obtain any at that time. These birds were placed in small cages about 18 inches by 10 inches by 10 inches ; the floors were covered with sand, a supply of grit and cuttle provided, two perches were fixed, and the feeding and drinking vessels were arranged on hinged doors so that they could be refilled without putting a hand inside the cage. The object of this arrangement was to avoid startling the inmate in any way. The cages were placed in front of a window facing south and no one was allowed near the cages. For four months the birds were kept in these quarters without being cleaned out at all. I had effected a cure of eye disease and was really anxious to try it on a Grass Parrakeet ;

but not one of these birds got any sign of it. This rather confirms my theory that it is not caused by dirt alone, because these perches became coated with the usual grey greasy deposit found under such conditions and the droppings collected in pyramids. The trouble starts when the birds are continually mishandled, and get foreign bodies on the eye. In endeavouring to obtain some relief by rubbing the eye on their perches an irritation is set up which, in conjunction with the dirty perch, starts and rapidly spreads the disease.

When I first saw sulphanilamide recommended as a cure for eye trouble I could see no connection with internal treatment of an external complaint such as this. But several medical men have confirmed that these drugs will cure such an ailment, and my own experience has proved it. In using this drug it was necessary to handle a patient three or four times a day and this rather looked as though any good one might do would be more than counteracted by the harm from the shock the bird would suffer, however gentle one tried to be. Some months later I passed this information to another aviculturist who had a Grass Parrakeet suffering with conjunctivitis, and he eventually reported a cure.

About this time I had a Salwatty King which had been taking part in the film *Blue Lagoon*. This process entailed a good deal of handling to move the bird from her usual quarters into the "props" parrot cage. Every week-end for about ten weeks she came home and was released into her usual 30 ft. aviary. The whole of the time her cages were kept unusually clean owing to the frequency with which her quarters were changed. Some weeks afterwards she developed eye disease, and again I was convinced that handling and not dirt was the cause. Rather in desperation, I decided that as the bird would most probably die anyhow, I might as well try this improbable-sounding cure. A medical friend suggested that better results might be obtained by using another similar drug, sulphamerazine, the advantage of which was that its period of effective activity was considerably longer than sulphanilamide. Eventually, I had a solution made up of 60 grains in suspension in 1 fluid ounce, which was to be administered only once in every twenty-four hours. The size of the dose had to be arrived at by guesswork, and for a King about $1\frac{1}{2}$ grains was used; this, of course, would have to be considerably less for a Grass Parrakeet. Within ten days the swelling was gone and there was no repetition of the trouble. I have since tried it on other birds with equally happy results. It is essential to change the perches daily because the danger of reinfection is great owing to the bird developing the habit of trying to obtain some relief by rubbing the inflamed eye. The administration of the dose, by the way, was quite simple. A fountain pen filler, with a small elastic band to mark

the amount of the dose slipped round the tube, was held against the lower beak and squeezed whilst the bird's head was held steady in the left hand. A small hypodermic without the needle might have been more efficient in skilled fingers.

The biggest nightmare for all breeders of Grass Parrakeets is without doubt concussion. Some say that this is an overrated danger, but I can remember the terrible reverses met with in the early days of Splendids. Since that time I had begun to think that perhaps I had been exceptionally unfortunate as there had been scarcely any losses from that cause for many years. However, when I moved all my birds, staggering losses were met with among Elegants and Bourkes. Many of these birds were moved into temporary indoor flights about 8 feet by 6 feet by 3 feet. The ceilings and walls were of hardboard, which may have been responsible for some of the casualties, but all trouble stopped when the birds were put into small stock cages about 2 ft. 6 in. by 1 ft. 6 in. by 1 foot, one pair in each. Grass Parrakeets, Bourkes in particular, are somewhat crepuscular in habit and can frequently be heard flying about just after dark. As the light was left on a time switch, although a small nightlight was left on all the time, the birds may have been so startled by the sudden turning off of the light that they committed suicide. I used to go in each morning dreading to find another casualty; two broke their necks but most had badly bruised skulls, generally the blue bruise was at the back of the head and base of the skull.

Having kept a number of these birds—some of those lost were six or seven years old and regular breeders—without any undue losses may I offer this warning to recall the matter to others. Once settled in their surroundings there will probably be no further trouble provided they are not changed round into another flight or subjected to any interference from hawks, owls, or other night marauders. The trouble is only met with when the birds are startled or unfamiliar with their surroundings. When turning new birds out, cover the ends of the flight with plenty of leafy branches, especially in front of any solid surface. Victims are usually perfectly fit one minute and dead or apparently paralysed an hour or even a few moments later; they never live more than twenty-four hours. Incidentally, Lineolated Parrakeets also appear to be subject to this failing.

Perhaps it is time I closed these notes, but after all, the Editor asks for them, and she can always slash them or save a bit for next time, so I will continue with one subject on which our Secretary says I have neglected to make a record—Lutino Ringnecks. I have reared a number of these in recent years, one pair of birds, both yellow, used to rear four young every year, all lutinos. They, of course, were stolen from my old aviaries before I moved down here. They never had anything but perfect youngsters and only one season did they

have one clear egg. They actually reared fifteen ; I wonder what has happened to them now. That record, of course, illustrates the Mendelian theory well, but some of my others are not so satisfying. One split cock mated to a lutino hen only reared one lutino out of three nests. Another pair, again split cock and lutino hen, have reared four green, three green, two lutino and two green, and finally two green birds in successive nests. Another pair, split cock and green hen, have reared four green, three green and one lutino, two green and two lutino, four green, four green, which means only three lutinos out of twenty birds. Another pair that are not mine have reared eight lutinos in the last three seasons although both parents are green birds.

It is evident that two separate forms of lutinism exist in Ringnecks even as there are two in Budgerigars, one being sex-linked and the other non-linked. This is borne out by the results obtained by our President at Foxwarren, as he records in the *AVICULTURAL MAGAZINE*, 1938 and 1940, that two lutino birds reared six youngsters which were all *green*. Two lutinos of the same type can only produce 100 per cent lutino young. Nevertheless, I believe that there are only sex-linked birds left in this country to-day. It may be that the small percentage of lutinos obtained is due to the embryos being weaker or parents not caring for yellow monstrosities among their green family.

Now that the Duke of Bedford has succeeded in rearing the lovely blue variety of this species we can look forward to the evolution of a white Ringneck. Naturally, it will take a couple of generations to achieve this, and with young Ringnecks unsexable until they assume adult plumage this may take some years yet. Incidentally, many people are not quite clear when Ringnecks do assume adult plumage ; they are just about two and a half years old when the ring starts to appear. It usually shows first almost on top of the head, considerably higher up than its eventual normal position as the pigment starts to show before the quill feathers have attained their full length.

Of course, the easiest way to produce the white would be to mate a lutino cock to a blue hen, as the young could be sexed from birth. All lutino birds would be hens split for the blue factor, and all the green birds would be cocks split for both lutino and blue ; there would not be any white in this generation but the sex linkage would automatically determine the sex. By mating a blue cock to one of these lutino/blue hens the white form could be anticipated, and it would be a hen. White of both sexes could only be obtained in two generations by mating brother and sister bred from the lutino cock and blue hen.

Although the Avicultural Society is well past its jubilee, no article has ever appeared in the whole of that period dealing exclusively with breeding the Cockatiel. It is rather amazing, but although one may

find some indices containing about half a dozen or more references to this bird, when you turn to the page indicated you have to read it two or three times before you discover one little line where the word Cockatiel is squeezed in a list of breedings or you find that it is the page of P.M. reports. I should imagine that no bird is more of an individualist, because I have never been able to take the slightest liberty with any Cockatiel during the breeding season, one look has always been the end of that clutch. Yet many breeders state that they have even taken nestlings out and cleaned their quarters before returning them, and the parents have not objected at all. Another thing, they frequently will not breed in the first year in new surroundings, and many young birds refuse to take any interest in matrimonial affairs before they are two years old. I am well aware that this is not the experience of many breeders, but in view of all that Cockatiels must have done for aviculture by gaining new enthusiasts I think they deserve a mention in dispatches. Like the poor, they are always with us.

* * *

MY FIRST CANYON WREN

By CARL NAETHER (Sherman Oaks, California, U.S.A.)

I have a good friend who lives on a very dry hillside away off the beaten paths in Southern California. He is exceedingly bird-minded, and he hails from Poland, where his love for birds was born. Though nearing seventy, he waxes as boyishly enthusiastic over his feathered charges as a seventeen-year-old might. He really is attached to his birds and knows them and studies them from morning till night, month in and month out, year after year.

Anyhow, Felix, that's part of his name, telephoned me with excitement appropriate to such a rare find, that he had caught "him" at last. He wouldn't identify "him"—but I suspected from the emotion in his voice that it was the Wren which I had wanted for several months. A Canyon Wren (*Catherpes mexicanus conspersus*) to be specific. This fascinating little busybody had been "chinking" ("chink, chink", is his usual call) about the hillsides in Felix's neighbourhood for several months, diligently examining every cranny and corner of outlying houses, rockpiles, and similar hiding places for delectable spiders and other Wren food. Always he would make his presence known by his oft-repeated "chink, chink".

So when this Canyon Wren searched for edibles about Felix's bachelor dwelling, he, remembering my wanting the bird, simply opened the back door and literally drove this elusive little chap

through it and into his bedroom, where he caught him. Having caught my friend's enthusiasm over the rare catch, I literally jumped into the old Ford and drove the twenty-five miles' distance in good time. Sure, enough! It *was* the Canyon Wren—beautiful little fellow, with his chestnut-brown back and greyish-white breast, the long, slightly curved beak, the cheery "chink" or "clink".

Now he occupies a roomy, glass-fronted cage, furnished with rocks and batches of dried leaves and the like to make the little chap feel at home. Some perches are placed almost upright, for the Canyon Wren is an inveterate climber—nothing seems too steep or too straight for him to hold on to. His movements are rapid, very rapid, in that he darts from place to place, always on the go, and always eager to hide. Of course, I provided him with several good hiding places. The result was that he would never show himself until I was some distance away from his cage. Then he would appear as if from nowhere, spot the mealworm I had dropped, seize it, and hasten to his retreat behind a big rock, where undisturbed he could attend to his meal.

Having had other shy birds, I thought that in due time this Wren would confide in me, even to the point of taking mealworms and other live titbits from my hand. But no, not this bird! Daily he would sing his charming little song and entertain me with his many antics—but always at a distance. So after six months of playing hide and seek with me, I thought I would remove the rocks behind and under which he was wont to stay in my presence, leaving him hiding places still, but not so many—and places where he could hide only partially.

The stratagem worked! My Canyon Wren has become much less shy, will not draw away in my presence, but remains in expectation of getting mealworm, spider, or moth. Who knows, soon, perhaps, he will even sing in my presence—his magnificent, descending scale song. No, not soon—I know my Canyon Wren—months, many months, will pass before he will approach me fearlessly. For he is ever wary. This does not mean that he does not like human beings. He does like them—but at a distance. Meanwhile this handsome little charmer, considered the most beautiful of all North American Wrens, entertains me and mine royally with his unique antics, as lovely and spirited a bird as any I have had.

HOMING CAPE CANARIES

By JOHN H. WALMSLY (Port Elizabeth, South Africa)

I have been following with great interest the numerous articles published recently by His Grace the Duke of Bedford, in connection with his efforts to establish a strain of homing budgies. Whilst I have no specialized knowledge of budgies and their habits, etc. (I leave this little group in the capable hands of my wife, who has, at the time of writing, about five or six pairs all busily raising chicks), I am most interested in the experiments from a general point of view. Over the course of several years of bird keeping I have had numerous experiences with a fairly large variety of aviary birds, which lead me to believe that there are many species which could be trained as homers. I have noticed that the homing instinct is very strong in certain members of the Serin Group. My experience with budgies when released had, until recently, convinced me that the homing instinct was non-existent in these birds. Those that I have from time to time released invariably shot straight up into the air and then made off as fast as possible, never to be seen again. It is to be hoped that His Grace will continue to publish in detail the results of his experiments in this field as they greatly contribute to our knowledge.

In that excellent work by Dr. Austin Roberts, *Birds of South Africa*, are details concerning the Cape Canary (*Serinus canicollis canicollis*), with an illustration. It is this species which is dealt with in this article, but before relating my interesting experience of its strong homing instincts I should perhaps mention the fact that I am not in any way conducting any special experiments in this field and only wish to record the facts for the benefit of those who may be interested in experimenting further. Being intensely interested in bird life in all its aspects, I am a member of the Port Elizabeth and District Pigeon and Cage Bird Association, the Eastern Cape Wild Birds Protection Society, and, more recently, the Avicultural Society. Among other things I make a practice of buying up collections of aviary birds when their owners tire of them or have to dispose of them for other reasons. I recover some of my cash by reselling them to other collectors. Many of them are sick, diseased, maimed, etc., when they come into my possession. These I carefully nurse back to health, and at times I frequently find myself in possession of too many of the more common and cheaper local wild birds; these I release as soon as they are able to fend for themselves. The Cape Canary falls within this category.

Last year I heard of one such collection being for sale and went along to inspect it. A brief inspection revealed the fact that the owner had little idea as to the basic requirements of cage birds.

About 200 birds were in an enclosure not large enough to accommodate more than two or three pairs. Most of the birds were infested with grey lice and mice ran up and down the wire netting in front of my eyes. At the time I had an exceptionally large stock of various birds on hand and was rather stuck for room, and it was therefore impossible for me to take over the entire collection. I eventually acquired about forty of the more common Cape birds at a price which nearly broke my heart. These I duly disinfected and isolated, releasing them as they became ready and able to fend for themselves once more. The remnants of this bunch consisted of three cock and four hen Cape Canaries, which I placed in a fairly large breeding cage in my garden. Eventually their turn for release came round, and one bright sunny morning I opened the cage door, watched them fly off into the thick surrounding bush, and then left home for work. To my amazement I returned home the same evening to find all seven contentedly sitting in a row in their cage. I then gave them food and water and closed the cage door as a protection against cats, hawks, etc. The following morning I repeated the procedure and watched them fly away in a bunch. On my return from work in the evening I again found them all in the cage. My coloured servant girl said that they had been in and out of the cage all day long. I again fed and watered them and closed the door of the cage for the night, repeating my actions the following day by releasing them first thing in the morning. This went on for about three months, during which period several of my fancier friends came along to witness the fact that I did indeed possess Homing Cape Canaries. Gradually the breeding season came round again, and one evening in early August I found that one of the hens was absent, a week later a pair failed to return, which left me with two cocks and two hens. These were allowed to come and go as they pleased. Towards the end of the breeding season another pair failed to return, leaving me with one pair; these were allowed their freedom for several more weeks until eventually I had to place them in my aviary. They are still there, and at the time of writing show all the signs of wanting to breed.

The immediate questions arising out of all this are: (1) What happened to those that failed to return? (2) Did they stay away of their own free will? (3) Were they killed or captured? (4) Why did one pair under the same conditions remain true homers for several months and not the others? (5) Does this not prove that it is not cruel to keep wild birds in cages? (6) Does it prove that birds can develop a true affection for their owners in the same way as dogs, etc.? (7) Would the young from the remaining pair inherit the homing instincts of their parents? (8) Is the call of the wild greater than the call of captivity with its security and abundance of food? I do not know the answers to these questions, one guess is as good as

another. In conclusion, I would like to remind readers that these birds were released in their natural habitat after being in my possession for only a few weeks.

* * *

HYBRID SONNERAT'S JUNGLEFOWL AND DOMESTIC FOWL

By DAVID M. JOHNSON (Port Orchard, Wash., U.S.A.)

Fifteen years ago I crossed a large Cornish Indian Game hen with a Red Junglefowl cock (*Gallus gallus*). These I have line bred all these years perfecting a strain of compact roundness of rather small size with slight pea comb and no wattles. Two of these hens have mated with a Sonnerat's cock ; the fertility has not been high but the chicks are hardy and virile, with astonishingly high capability of remaining alive in spite of the cold, either frost or cloudy, cool days peculiar to the north-west U.S.A.

The chicks started to hatch on Easter Sunday and continued to hatch slowly, varying from the usual twenty-one days of the domestic fowl, some hatching as much as three days later than this. The nest was sufficiently humid and every egg that was fertile produced a hardy chick. The fertility rate was two out of fifteen eggs and the other clutch was six chicks out of fifteen eggs.

The chicks were hatched with pin feathers in the wings and in four days had juvenile wings. They were all as much alike as peas in a pod when hatched and to date (18th May) there is very little variation. They develop rapidly and practice flying on the fifth day of life. They are all striped chicks, and the feet and legs are slim and firm in contrast to the puffy legs and feet of chicks with the stigma of domestication.

On the whole I should say that the wild Junglefowl is predominant as the chicks now have striped underparts similar to the female Junglefowl. The tail is carried low, or pointed downwards, and the wings are large as in peafowl chicks. There is not yet any visible comb or any distinction in sex, except in one chick which I suspect may be a cock ; the rest have the appearance of hens.

The chicks demand meat vociferously, as do Junglefowl, and this, with ordinary grain of mixed varieties, has been their only food. The cock Junglefowl is kindly disposed to the chicks and runs about with them.

Mr. Lint, of the Zoological Society of San Diego, tells me that this cross has been achieved previously on various occasions, but unfortunately breeders often neglect to publish records.



By permission]

[Journal of the Royal Horticultural Society

DR. MAURICE AMSLER.

To face p. 137.

[This is a cross that must have been bred on several occasions but Mr. Prestwich has no definite record. Dr. Hopkinson gives the cross with parentage reversed : " At the Zoo in 1913."

Delacour says of Sonnerat's or Grey Junglefowl : " Hybrids with Red Junglefowls and domestic poultry are fertile but we do not believe that *sonnerati* has any place in the ancestry of domestic breeds, even those which possess spangle-like spots, as has been advanced by certain authors."—Ed.]

* * *

OBITUARY

" M. A."

The passing, on 11th June, 1952, of Dr. Albert Maurice Amsler deprives the Society of one of its oldest and most able members.

Dr. Amsler had a very extensive medical experience, having been House Surgeon, St. Bartholomew's Hospital ; Clinical Assistant, Hospital for Children, Great Ormond Street ; and Physician and Obstetric Physician, King Edward VII Hospital, Windsor.

He was in private practice at Eton for thirty years and during that time came in contact with thousands of Etonians—being held in such esteem that he was elected an Honorary Member of the Old Etonian Society. He retired in 1936 and went to live at Delmonden Manor.

The breeding of birds was Dr. Amsler's special interest, as opposed to mere keeping for ornament, and his successes were many. Perhaps his greatest feat was the hatching of the Golden-fronted Fruitsucker on three occasions, but none was reared beyond twelve days.

First successes were recorded on nine occasions, Hooded Siskin (1912), Great Tit (1913), Orchard Finch (1915), Lesser Saffron Finch (1915), Grey Francolin (1927), and Hermit Thrush (1927), Blue Rock Thrush (1931), Amethyst Starling (1935), and Black-crested Finch (1939).

Other species bred include Swainson's Lorikeet, some twelve or fourteen broods ; Occipital Blue Pie—this had only been bred once, and that in the previous year by Lord Lilford ; Blue-winged Magpie, Chinese variety ; Painted Finch ; Gouldian ; Siberian Bullfinch ; Orange-headed Ground Thrush ; " American Robin " ; Parrot Finch, and Tricoloured Parrot Finch (some thirty Parrot Finches in a single year).

From the avicultural point Dr. Amsler will probably be best remembered for his success in breeding Blue Robins, mainly by transferring their eggs to the nests of wild birds and allowing them to do the rearing.

While still retaining a keen interest in aviculture—he was Chairman at the British Aviculturists' Club dinner as recently as the 12th March

—Dr. Amsler's time since his retirement was mainly spent in horticultural pursuits : he was a world authority on Camellias and Lilies, and wrote extensively on these and a number of other plants.

In 1951 the Royal Horticultural Society conferred its highest distinction, the Victoria Medal of Honour : happily Dr. Amsler was able to attend the presentation by Lord Aberconway on 26th February, 1952.

Condolence is offered to Dr. Amsler's widow and daughter. The Doctor will be sadly missed by his very large circle of friends, medical, avicultural, and horticultural.

A. A. P.

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A MEMORY OF STEEP HOLM

By DENNIS LOVELL (Hayes, Middlesex, England)

The news that a large-scale project was afoot to ring the young gulls on Steep Holm beckoned memories of my first visit to that lonely Bristol Channel island.

It was early one morning in August when we embarked at Anchor Head, Weston-super-Mare. About an hour later we set foot on the pebbly beach at the eastern end of the island, and I well remember the sense of exhilaration then felt. Our arrival was greeted by a whirling cloud of Gulls, who vociferously expressed their disapproval at such an invasion of their privacy. Wheeling above in an angry crowd they cried, screamed, and laughed hysterically in well-nigh deafening noise.

Steep Holm stands at the mouth of the Severn estuary, midway between Somerset and Glamorgan, and two miles and a quarter from its twin island of Flatholm. Shaped roughly like a rugby football, the island is composed entirely of limestone and covers an area of approximately fifty-seven acres. The summit forms a plateau just over a mile in circumference.

Once ashore, the six-hours stay quickly passed in the exploration of the island and its wild life. Climbing the winding track above the landing place, I was delighted to find many passerines and other small song birds on the sheltered slopes, where sycamore, maple, elder, sloe, lilac, privet, and bramble rioted in profusion. I caught an occasional glimpse of the handsome Yellow-hammer, whose thin note refused to be silenced by a sultry summer day. Several Swifts, one of the earliest of our birds to fly south, alighted on a projecting rock above. Rock-Pipits trilled sweetly, and one had a nest on the grassy verge of the path. My notes also include reference to a Hedge Sparrow, Wheatear,

Linnet, Meadow Pipit, Song Thrush, Blackbird, and a Wren. (It occurred to me that the latter might be a new sub-species, akin to the St. Kilda Wren, for I carefully noted that its bill was bigger and its tail more erect than those of the mainland kind.) Higher still, I surprised a young Gull, dressed in speckled brown, who quickly hid himself under the low-lying privet.

The boatmen, who had brought me across from the mainland, called for a rest now we had gained the summit, and while they sat in the warm sunshine, I took off my mackintosh and strolled across to inspect the ruins of the ancient Priory of St. Michael, which was built on the reputed site of an early Christian shrine, belonging to the monks at Glastonbury.

This hallowed spot was now alive with Gulls—Herring, Lesser, and Great Black-backed. Their nests were everywhere, not excepting the exposed concrete roof of a nearby gun-emplacement. My presence was evidently resented, and I was attacked by shrieks and wheeling wings above, and all around me.

Many immature Gulls sought the shelter of bramble and boulder as I scrambled over the southern slopes, where I also disturbed a suite of Mallards, who promptly took to wing. I found three of their down-lined nests before the flush, returning from the sea, alighted just above me.

The footpads of Sheld-Ducks marked the entrance to one rabbit burrow, indicative of their deep underground nest. About seven of these handsome birds were resting on the waters below; their glossy black, white, and orange plumage lending gaiety to the scene. Oystercatchers flew over the rocks, and I found their trilling whistle quite pleasant in contrast to the screaming abuse from the parent Gulls.

Consorting with the immature Gulls, I was intrigued to find several fully-fledged young Gannets. Hiding under the mass of privet and crawling quietly forward, I was able to study one of them at close quarters. As large as a goose, its outstanding features were piercing grey eyes, a long dagger bill, and webbed feet. Head, neck, and breast were white flecked with brown, and it had black or very dark brown plumage. These birds were, of course, in their first or second year, for several moults must occur ere the young Gannet dons the more familiar adult dress of nearly all white, with a tinge of buff on the head and neck and deep brown wing-tips.

Magnificent in flight, the Gannet is clumsy in motion on land. I well remember watching these youngsters alight on the plateau; they "touched down" in what seemed a heavy braking manner, with wings, tail feathers, and webbed feet spread to capacity. I wondered if they had travelled far. Possibly from the remote St. Kilda. Or had they flown here from the Grassholm Gannetry? It was easier to guess

at the reason for their presence on the island. At any rate, I concluded that the young Gannets were but resting during migration south.

Pondering these things, I climbed back to the summit. Judging by the number of corpses and skeletons that met my eye, it seems safe to assert that the most perilous stage in a young gull's life is when it first starts to run about. In this case I decided that the murderer was probably some bird of prey. While I was seated at the edge of the north-western cliffs, eating my luncheon sandwiches, I became aware of the guttural croak of Ravens echoing among the crags. On a near-by rock I spotted a pair of these huge crow-like birds, suspicious of my intentions. At intervals of three minutes or so they would circle over my head uttering their deep, angry cronk.

The Raven is amazingly clever on the wing. These two proceeded to entertain me by an exhilarating aerial display over the sea—soaring, gliding, diving, and flying on their backs like R.A.F. aces. I was particularly impressed by their game of tumbling down from a considerable height as if injured, then “flattening out” at the last moment by throwing out wings.

The “show” was suddenly broken by the appearance out of the blue of a sinister looking, yet beautifully streamlined bird—the Peregrine Falcon, who, with incredible speed, swooped at his prey in mid-air. The Ravens turned instantly, each in a different direction, swerving and twisting so skilfully that they easily evaded the Falcon.

It was time to move. I walked some way along the rough path which marks the northern edge of the plateau, until I came to some steps leading to a narrow beach nearly 300 feet below. I sat on the topmost step for a while, watching the Cormorants, dressed in black and bronze with whitish patches, passing low over the water beneath me, when I saw flying in from the sea at a great height a flock of small birds. With swift unerring flight the invaders approached, their sharp-pointed wings urging them through the still air. As the congregation lost height I saw that they were mostly Golden Plovers, but included in their number a few Lapwings.

Climbing on to the roof of a hut I lay motionless watching at close view these lovely creatures. I heard the wild, flute-like cry of the Golden Plover who, still in their striking wedding dress, spangled gold and black with a white border, were sunning themselves or running about picking up seeds and insects.

I slipped down from the hut roof and resumed my stroll, with the inescapable cry of Gulls yet in my ears. The island abounds with rabbits, a lean variety with rust head, nape, and back, which scurried off in all directions as I drew near. A pair of Goldfinches sang from a single thistle head, Linnets were feeding in caraway and clover, and a solitary Turtle Dove came to glean fruit of the tall withered alexanders.

The tide was now at its lowest ebb. I could see to the east a spit of

sand and shingle, extending outwards from the landing beach for at least 300 yards into the tideway, where a motley of waders were preening themselves or foraging for shellfish, sand-worms, and other sea creatures.

As we left that enchanted island a wind blew up and rain threatened. All day I had watched the Gulls circle and wheel and dive and glide with outspread motionless wings. But the prevailing memory is of their artistry as they now nonchalantly rode the waves, or drifted like flakes of foam on the wind close to the surface of the angry waters.

* * *

REARING WILD WATERFOWL IN CAPTIVITY

By R. S. MACKENSEN (Yardley, Pennsylvania, U.S.A.)

Last summer my father, William J. Mackensen, and I, procured a number of wild duck eggs by air from Iceland. Represented in this shipment were eggs from the Tufted Duck (*Aythya fuligula*), Barrow's Goldeneye (*Bucephala islandica*), Old Squaw (*Clangula hyemalis*), Northern Eider (*Somateria mollissima*), Greater Scaup (*Aythya marila*), and Black Scoter (*Melanitta nigra*).*

These eggs were incubated by small cross-bred bantams, and we were successful in hatching young of the Tufted Duck, Barrow's Goldeneye, Greater Scaup, and Black Scoter. All young of the first three species were reared to maturity with no difficulty. Three out of six Black Scoters hatched were reared to maturity. The other three never fed, and died within the first week. This we attributed to their highly nervous and shy temperaments, which they had not outgrown up to the time we sent two of them to the Highland Park Zoo at Pittsburgh, Pennsylvania. The third one was killed by a nursing rat. These Scoters remained separate from other young ducks in our holding pen, refusing to have anything to do with them.

It is interesting to note that for about the first week these Scoters, having reached maturity and being placed for the first time in an enclosure with running water of a sufficient amount in which to swim, got thoroughly soaked to the skin each time they went in the water. Mr. J. Delacour informs me that this is quite usual with all Scoters, even wild trapped ones, who have been without swimming water for several days. In fact, he says that they will drown if turned out on a large lake at this time.

As is well known, Scoters are among the most aquatic of the sea ducks and, in the wild, their diet is just about entirely marine animals such as mussels, scallops, oysters, etc. Those which we raised were

* J. Delacour and Ernst Mayr, 1945.

fed only on chicken pellets with a minute portion of whole wheat mixed in. Rearing pens were completely devoid of vegetation. To the best of my knowledge, this is the first time that they have been so raised.

For the benefit of those who may not be familiar with poultry pellets, let me explain that they are merely a finely-ground mash which has been moistened, and then pressed together and baked into small masses varying from the size of ground oyster shells, for chicks and small birds, up to $\frac{3}{4}$ of an inch in diameter for Turkeys and large birds. The open formula of the particular pellet which we used (typical of the formulas produced by most large poultry food manufacturers) follows :

496 lb. Ground wheat
 30 lb. Fish meal
 780 lb. Yellow corn meal
 200 lb. Fine ground oats
 60 lb. Dehydrated alfalfa meal
 200 lb. Soybean oil meal
 50 lb. Meat scrap
 20 lb. Homogenized condensed fish
 50 lb. Dried corn distillers solubles
 10 lb. Riboflavin supplement
 50 lb. Dried whey product
 40 lb. Dicalcium phosphate
 2 lb. "D" Activated animal sterol
 2 lb. Vitamin A feeding oil

2,000 lb. of Pellets
 6 oz. Manganese sulphate added.

Guaranteed analysis of the above mixture is

Protein	. minimum	16.00 per cent
Fat	. minimum	3.00 „
Fibre	. maximum	6.50 „

For a number of years my father and I have been advocating the use of poultry pellets for wild Pheasants, Peafowl, and Waterfowl in captivity. We have found that they thrive once they become accustomed to such a diet, regardless of what their food in the wild may be. Here, we believe, is rather conclusive proof that we have been correct in our contentions. Furthermore, we believe that this discovery will make it fairly easy for anyone successfully to keep these birds in captivity, and that it will also make it possible to keep species that heretofore have not done well.

* * *

A BETTER WAY TO FEED HUMMING BIRDS

By CHARLES CORDIER (New York, U.S.A.)

Most of the readers of this magazine are familiar with the longevity records attained by Humming Birds in captivity ranging from two, four, five, up to eight years.

In the light of these records it would seem that the diet for Humming Birds in captivity has been solved satisfactorily. However, this is far from being the case. The birds that live for years are the exceptions and the others that live from forty days to four or six months are the rule. My own experience over the years has convinced me that practically any Humming Bird will live on honey or sugar-water alone for about forty days. Even if fed from the very day of capture on the standard formula of Mellin's food, condensed milk, meat extract, honey, and a dash of vitamins, some will not live on this antiquated formula for more than forty days, such as the Tooth-bills, which, as the structure of the bill implies, are probably largely insectivorous. On the new formula I am advocating this species does very well.

Thus the matter has stood for the last seventeen years and the poor collector going in for Humming Birds simply never knew where he stood after the crucial forty-day test, the period during which these birds live anyway, no matter how wrongly they are being fed.

Fortunately I have been corresponding over the years with Dr. Béraut of Rio de Janeiro, an ardent Humming Bird fan who keeps some forty hummers in thirty species in one single small room with the greatest success. He is keeping in splendid health all the species found in the State of Rio de Janeiro, where I have collected twice, and which I never managed to keep for long. Dr. Béraut simply never liked the idea of these birds getting any cereal in their food, as in nature they have no chance to do so. Little by little he evolved his own formula and in view of his enthusiasm over it it did not take me long to make up my mind to adopt it. The improvement is so phenomenal I do not hesitate in passing the new formula on to our readers. In essence it is simply the known formula from which the Mellin's Food has been left out and essential vitamins added. At this writing I have a collection of seventy specimens consisting mostly of mountain species which are, by far, more delicate than lowland hummers or, rather, I should write of their frailty in the past tense, as losses have been practically nil.

I am showing here quantities to feed forty Humming Birds. It must be borne in mind that slight variations in the composition are in order. The vitamin requirements indicated are desirable minima. Giving a bit more does not matter. Not all honeys used are of equal sweetness. More important than anything is the right quantity of liquid a Humming Bird must consume per day. The guiding rule here is : better have the formula too weak than too strong. If the liquid is too weak

the birds can make up for the deficiency by drinking more, whereas if the formula is too strong they will suffer thirst and are sluggish. About the right quantities the birds should drink see at end of article. Here is the formula :

Salted meat extract, such as Armours in glass jars	3 grams
Sweetened condensed milk	40 grams
Honey	100 to 180 grams
Water to complete 1,000 cu. cm. or roughly 1 quart.	
Vitamins A and D, for proportion see under vitamins.	

After our return from Ecuador to the United States we have noticed that the honey purchased here is so much weaker that we have to add almost twice as much of it to get a formula of equal sweetness. Therefore no hard and fast rule can be given regarding the proportion of honey to be incorporated, and the amount should be experimented with until the birds feed as much of the formula as indicated at the end of this article. Do not alter the amount of condensed milk recommended.

We feed this mixture from 8 a.m. to about 6 p.m. At that time it is replaced by honey-water to which vitamins B and C have been added. If on hot days the food should get sour after staying in the bottles from four to five hours, replace by fresh food. In zoological gardens the complete formula is usually given at 8 a.m. and noon and replaced by honey-water at 4.30 p.m. to 5 p.m.

The honey-water is prepared by diluting 150 grams or more of honey with enough water to make up 1,000 cu. cm. or one quart.

How to give the vitamins :—

The druggist should make up for you the following formula :

One ampoule Vitamin A of 600,000 units.

One ampoule Vitamin D of 100,000 units.

In 30 cu. cm. of almond oil.

The finished preparation will represent roughly 800 drops and each drop coming out of a cut-off dropper (drops from a pointed dropper are smaller) will contain 750 units of vitamin A and 125 units of vitamin D. Beat four drops of this vitamin preparation into the condensed milk you are using. Dilute the condensed milk first with a little hot water to make the mixing easier. If done right the vitamins will remain in suspension in the mixture. It will be noted that each bird is getting that way, in theory, at least about 75 units of vitamin A and 12 units of vitamin D daily.

Into the honey-water given in late afternoon add the contents of one 10 mg. ampoule of vitamin B (chlorhydrate of thiamine) and one 100 mg. ampoule of vitamin C (ascorbic acid).

During several months I have experienced with a multi-vitamin preparation such as Vi-Penta, Abdecoll, etc., one drop to 35 cu. cm. of

the formula and the honey-water. Birds did very well; however they had difficulty in getting their wing-feathers moulted. By switching to the four vitamins as described above in detail they moult their wing-feathers without trouble.

One last word about the quantity Humming Birds should drink of the formula in ten hours, if the formula is prepared correctly :

Small Humming Birds such as Wood Stars, Flame-bearers, Racket-tails, Rufous and Costa's from California, Emeralds : 9 to 10 cu. cm.

Medium-sized birds—Anna's H.B. from California, Sapphires, Wood-Nymphs, Ruby and Topaz : 12 to 15 cu. cm.

Slightly larger than medium-sized ones—Mangos, Violet-Ears : 20 cu. cm.

Large H.B.—Brazilian Swallow-tails, Giant H.B., Sapphire Wings, Topaza Pella, 25 to 30 cu. cm.

* * *

THE BARBARY DOVE

By DEREK GOODWIN (Virginia Water, Surrey, England)

The Barbary or Domestic Collared Dove, known to Americans by the descriptive name of Blond Ring Dove, is a familiar cage-bird almost throughout the world. Exactly when and by whom it was first domesticated still seems to be uncertain. Many have supposed it to be the "Turtle Dove" that was used in biblical times for sacrifices. Although possible, this is a difficult point to try to prove, especially in view of the fact that three wild species of *Streptopelia*, one of them very similar to the tame bird, are—and presumably always were—common in Palestine. On the other hand everything suggests that the Barbary Dove has been domesticated for a very long period. It was certainly well known in England in the eighteenth century, when Albin published a coloured plate of a Barbary Dove under the title of "The Turtle-Dove from the East Indies", and informed his readers in the description that "They are tame pretty Birds and kept in Cages by the Curious where they will breed and bring up their young". Linnaeus, after saying mistakenly that it is found in India, adds "our common Turtle-dove" obviously implying that it was widely kept in Sweden in his day.

Some authorities consider the domestic Barbary to have been derived from the Collared Turtle-dove or Indian Ring-dove (*Streptopelia decaocto*) which is found from South-Eastern Europe across Asia to Japan, and has of recent years spread westward through Europe. As was pointed out at length by Dr. Hartert in 1916 (*Novitates Zoologicae*, xxiii, pp. 78-88) there are, however, many reasons for

considering this incorrect—particularly the dissimilarity of their cooing, and the fact that the Indian Ring-dove is larger than the domestic bird, whereas it is an almost universal tendency for domestic forms to increase in size—and every reason for supposing the real ancestor of the tame bird to be the Rose-grey Turtle-dove (*Streptopelia roseogrisea*) which is found in arid regions of northern Africa south of the Sahara, and southern Arabia. Some modern systematists, however, consider the Rosy-grey Dove and the Indian Ring-dove to be conspecific. But in so far as concerns one of the chief points of interest in connection with the domestic bird, it is immaterial from which of these two species (or races) it originated. Unlike nearly all other domestic birds the Barbary Dove shows little variation. Apart from a white variety known to bird-dealers as the “Java Dove” it is everywhere the same creamy fawn bird with black neck-ring and ruby eyes as our familiar childhood pets. In this it differs from the Rosy-grey Dove (and incidentally from *all* other wild species of ring-necked Turtle-doves) which although almost identical in markings is darker above with no buffish tinge and with a vinous pink tint on head and breast.

That a domestic bird of long standing should show so little variation is surprising, but for the natural colour to be unknown in the domestic form is quite without parallel, and poses some interesting queries. Are our domestic doves perhaps descended from some race of the Rosy-grey Dove that has remained undiscovered by Europeans? This seems most unlikely. The only evidence in its favour is that of an ornithologist who in recent years recorded that in a certain part of Africa he observed doves of this species paler than any he had seen before. He did not, however, secure any specimens, nor when questioned could he recall any vital details as to their appearance. It seems more probable that the creamy-buff form arose as a sport from the wild type and is a true-breeding recessive. The latter is suggested by the fact that when it is crossed with other species of Doves the hybrids (at least those that the writer has been able to examine), although intermediate in markings, show no sign of the pale tint of the domestic parent. That any people should have domesticated only abnormal examples of a species sounds at first an absurd proposition. But is it? Man has ever valued the unusual and despised the commonplace irrespective of their intrinsic merits. Even to-day white pheasants and peacocks are valued more highly than normal coloured birds of far greater beauty. The wild Doves of normal colouration, being no doubt abundant, there would have been little incentive to bother to breed in captivity a bird of which specimens could easily be trapped or netted when required. On the other hand when a sport of the creamy-buff colour appeared, it would no doubt have made an immediate appeal by its novelty and beauty.

Also the pale plumage may well have suggested a spiritual purity that rendered such birds particularly efficacious as sacrifices, and thus religious as well as temporal motives may have encouraged its domestication. The discovery that if a pale bird was paired to the relatively worthless normal type all the young resembled the latter would no doubt have sufficed to induce the early breeders to concentrate solely on the former. In the absence of any detailed knowledge of genetics it is most unlikely that any pointed experiments in the way of interbreeding normally coloured young of mixed parentage would have been undertaken, the occasional production of a pale bird by normal parents being more likely to have suggested supernatural rather than genetical implications. Thus the pale birds alone would have finally become domesticated, and in that state disseminated throughout the world.

The above is admittedly mere hypothesis, but one that seems best to fit the facts of the case. At all events to whoever first domesticated the Barbary Dove we are indebted for a bird which is a tame and charming pet even when "kept in Cages by the Curious", but is a thousand times more attractive if allowed to fly at liberty, as it easily may be, provided one takes care to shut it up safely at night out of reach of owls and cats.

* * *

BRITISH AVICULTURISTS' CLUB

Meetings and dinners during the 1952-53 session have been arranged for the following dates :—

10th September, 1952

12th November, 1952

14th January, 1953

11th March, 1953

13th May, 1953

ARTHUR A. PRESTWICH,
Hon. Secretary.

BREEDING OCELLATED TURKEYS AT THE SAN DIEGO ZOO

By J. DELACOUR (Los Angeles, California, U.S.A.)

Ocellated Turkeys are the most beautiful of all the game birds of the New World. In the richness of their iridescent plumage they rival the gaudiest Pheasants of Asia. Their large size, only slightly inferior to that of the common Turkey, their graceful shape, and the curious display of the cock all contribute to their striking appearance. A native of the hot lowland forests of Honduras, Guatemala, and southern Mexico, this fine species has always been scarce in European collections, where a few have figured now and then in the past, but never bred. In 1938 Mr. C. Cordier brought to Clères and to Leckford less than two dozen birds caught, or reared from the eggs, in the Peten district of Guatemala. But at the end of the last war the only birds left in England were merely a couple of hens at the London Zoo.

After the war Mr. Cordier accompanied Dr. D. S. Newill to the Peten, and they brought over a nice consignment, which was distributed among American Zoos and a few game breeders. Two or three young have been reared in recent years at the Washington Zoo and at Mr. C. Hooke's game farm near Napa, California, now closed. But the only real breeding success of these fine birds has occurred at the San Diego Zoo, where a very favourable climate as well as special and adequate care by the Curator of Birds, Mr. K. C. Lint, make conditions particularly propitious.

Mrs. Belle J. Benchley, Executive Secretary, Zoological Society of San Diego, reports as follows :—

“ Ocellated Turkeys had been birds to conjure with until early in 1946, when several American zoos, including the Zoological Garden of San Diego, joined with Dr. D. S. Newill, of Connelville, Pennsylvania, in a trip into Guatemala to collect the young birds with the aid of local citizens.

“ Dr. Newill, with the help of Mr. C. Cordier, brought back a fairly large group of young birds. Each zoo which participated had provided the sum of \$500.00 for one pair of birds, and some of the zoos had arranged for more than one pair.

“ In November, 1946, Dr. Newill arrived from Guatemala with a good collection and one pair was shipped to San Diego. The hen was in a very weakened condition and the male had an injured leg which had resulted in a stiff-joint at the knee. Otherwise he was in fine condition and after his first moult made a show which was all anyone could have expected.

“ The hen had also greatly improved during the winter at the hospital of the zoological garden. Early in June, 1947, she began

laying, and during that season she laid a total of twenty-eight infertile eggs. The male showed no signs of sexual maturity, and it was not until the following spring, 1948, when he really had attained full mature plumage, that he began to display any signs of mating with the hen. We could only hope for the best, but in case of failure I had contacted the University of California through its Agricultural School at Davis which was most anxious to obtain specimens or fertile eggs.

"And so, when the first eight eggs again proved to be infertile, indicating complete inability to mate by the male, the head of the Department, Dr. Lorenz, came down and artificially inseminated the hen. As the result of this effort fourteen young Ocellated Turkeys were hatched.

"Hatching was only the beginning of our trouble, for these young Turkeys were subject to all of the troubles that beset the commercial Turkey raisers of Southern California. Especially the early period of summer in San Diego, with its overcast skies, and foggy mornings contributed to their misery and deaths. However, we did raise five fine husky youngsters from this artificial insemination and during the second season we hatched and raised seventeen fine young Ocellated Turkeys.

"We used artificial insemination on the imported pair for three summers, but the third summer the finest and healthiest young we produced were from our own trio of birds which we had raised in 1948 through the first artificial insemination by Dr. Lorenz. The original hen was mated with the best cock of the 1948 hatch.

"The feeding habits of these birds are quite similar to our North American Turkeys. They must have a high protein diet, including mealworms, insects, and well balanced commercialturkey mash and chick feed which play an important part. They consume weed seeds too, and it appears that if we could turn them out in a large natural area where they could pasture on the new young weed growth and catch plenty of native insects we would not suffer so many sleepness nights and headaches as they now inflict.

"However, Ocellated Turkeys are too rare to turn loose in an area populated by a sight-seeing public, for many visitors would certainly want to go home proudly waving a tail feather from one of the rarest and most beautiful birds in captivity. With proper incubation and three nice trios of mature birds we do feel that we will be able to keep up an exhibit at least of these gorgeous birds. Fortunately also for us, at least, the "pair" that the Zoological Garden of Philadelphia received consisted of two hens, and consequently that zoo was happy to exchange one of its hens for a San Diego hatched male. This gave us a new strain which we have combined with one of our home-raised cocks, and we hope Mr. Griswold will be successful in increasing his flock.

"To date there has been only one other zoo that has succeeded in producing fertile eggs, which was the National Zoo at Washington, D.C. Now our young stock has gone to two of the European zoos, and we hope that with a large number of institutions exhibiting and working with these turkeys the Ocellated Turkey may be preserved, if only in captivity. They are apparently becoming increasingly scarce in the wilds, which probably indicates that they are neither prolific in reproduction, very long lived, nor able to cope with advancing civilization and its ultimate destruction of natural habitats."

There was a good stock of Ocellated Turkeys at San Diego when I last visited the zoo on 29th June, 1952. Besides the three breeding pens of a cock and three or four hens, five young birds reared in 1950 and five more hatched in 1951 make up a total of some two dozen specimens. About twenty chicks were lively and well, and others due to hatch. Mrs. Benchley is determined to establish and propagate this most interesting species and to distribute her birds' offspring as widely as possible.

* * *

NEWS AND VIEWS

The Council of The North of England Zoological Society, through the Director-Secretary, G. S. Mottershead, kindly invite members of the Avicultural Society to lunch at the Zoological Gardens, Chester, on Saturday, 6th September, 1952.

The invitation to lunch is *confined to members*. Free admission to the Zoo is offered to friends, and lunch may be reserved for them. Members intending to accept the invitation must notify the Hon. Secretary, 61 Chase Road, Oakwood, N. 14, before 30th August, 1952.

The Chester Zoo is 180 miles from London, 15 miles from Liverpool, 40 miles from Manchester, and 72 miles from Birmingham.

Suggested trains (subject to confirmation) from and to London are :

Leave Euston	8.30 a.m.
Arrive Chester	12.26 p.m.
Leave Chester	5.10 p.m.
Arrive Euston	9.15 p.m.

Fares (subject to revision) return, 1st class, £3 18s. 10d.
3rd class, £2 12s. 6d.

There are excellent bus services from Chester Market Square, Service No. 13, to within 150 yards of the main entrance to the Zoo and a regular direct Zoo service to the north entrance; also a direct service from "Woodside", Birkenhead, to the north entrance.

Visitors arriving by train will have to proceed by bus to the Market Square in order to catch a bus to the Zoo. If members arriving by the London train would kindly advise the Hon. Secretary, arrangements

could be made for them to be conveyed direct to the Zoo from the station.

* * *

In the Queen's Birthday Honours the honour of Knight Bachelor is conferred on Edward J. Hallstrom, "For philanthropic and public services".

* * *

The Royal Zoological Society of Ireland has appointed C. S. Webb Superintendent of the Phoenix Park Zoo, Dublin, in succession to the late C. L. Flood.

* * *

The Queen and the Duke of Edinburgh, accompanied by the Duke of Beaufort and the Earl of Dalkeith, visited the Severn Wildfowl Trust at Slimbridge, on 25th April. The main purpose of the visit was to see the five Trumpeter Swans presented to Her Majesty during her tour of Canada.

* * *

The Cooper Ornithological Club has done our Hon. Fellow, F. H. Rudkin, Sr., the signal honour of dedicating to him the coloured plate in *The Condor*, 1952, March-April number. The plate is from a historic painting by Andrew Jackson Grayson of the Red-fronted Parrot, *Amazona finschi*.

* * *

Six Pelicans took up residence at St. James's Park on 24th April. Four of the six are Texas Browns, presented by the Governor of Texas, and the other two are Eastern Whites, a gift from the Ameer of Bahawalpur. The birds had been wintered at the Zoo, and while there had the extensor tendon of one wing severed—now considered a more humane alternative to pinioning.

* * *

The President's Garden Party on 31st May was, as usual, a great success. The weather was a considerable improvement on last year. Heavy rain in the morning cleared by three o'clock, and the many visitors were able to enjoy Foxwarren Park and its numerous attractions. One of the charms of these parties is their informality. Mr. and Mrs. Ezra spare no effort to make their guests feel welcome; consequently, when they leave they take with them happy recollections of a very pleasant afternoon, and look forward with lively anticipation to the next party.

* * *

J. M. Gill, Southall, reports a brood of five Barnards out of the nest and flying well. The parents have now bred during four successive seasons; young previously reared being three, three, and two. The pair

of Plum-heads bred in 1949 hatched a young one but it was found dead about three weeks later. The old hen, mated to a recent importation, hatched one of four eggs and the young one is now ten days old and thriving.

Ring-necks, split-lutinos, have four young, three green and one lutino. During the past five seasons this pair has reared twenty-one young, nine being lutinos.

A. A. P.

* * *

LONDON ZOO NOTES

By JOHN YEALLAND

The first of the South American Jacanas to be exhibited in the Gardens was recently purchased. It is the Surinam Jacana (*Jacana spinosa jacana*)—a curious bird with a carpal spur which is like a rose thorn and quite as sharp, a large area of silvery lemon yellow on the flight feathers and, of course, the very long toes.

Other purchases are a Golden-winged Sun-bird (*Drepanorhynchus reichenowi*) and two pairs of Baikal Teal (*Anas formosa*).

Those received in exchange include a pair of Dufresne's Waxbills (*Coccothraustes melanotis*)—perhaps the most delightful of all the passerine seed-eaters—a Red-crowned Parrot (*Amazona rhodocorytha*); a pair of White-eared Conures (*Pyrrhura leucotis*) and two Grey-headed Gallinules (*Porphyrio poliocephalus*).

The presentations consist of an Ocellated Turkey (*Agriocharis ocellata*); a Great-billed Touraco (*Tauraco macrorhynchus*); a Sierra Leone Green Fruit Pigeon (*Vinago calva sharpei*); two African Pygmy Geese (*Nettapus auritus*), and the late Mr. C. T. Maxwell's small collection of psittacine birds which includes a Banksian Cockatoo (*Calyptorhynchus banksii*).

The three Great Eagle-Owls hatched early in the year are almost fully grown and the Snowy Owls are nesting.

The Quaker Parrakeets have built one of the large communal nests of twigs, and this makes an interesting exhibit in one of the Parrot House aviaries.

A Green-winged King Parrakeet has been bred, but the eggs of the Grey-winged Trumpeters were again infertile.

The Stone Curlews proved themselves to be two females by each laying eggs. One of these clutches was incubated for a few days by Ringed Plovers who subsequently nested on their own account, but did so near enough to the front of the aviary to tempt a thief to cut the wire-netting and remove the three eggs.

Common Rheas laid and plaster of Paris "eggs" were placed in

the paddock in the hope of inducing the male to incubate, but someone climbed two fences and braved the wrath of the male in order to secure this disappointing prize.

The Night Herons seem to be nesting as usual in the willow trees of their aviary and a Gannet is sitting.

The King Penguins have laid, as have Sclater's Curassow and West African Crowned Crane.

A Gaboon Forest Robin, brought from British Cameroon in 1948 by Mr. Webb, laid two eggs. It seems that the eggs of this bird have not been described and so, of course, these have been sent to the Museum. A Blue-shouldered Robin Chat brought at the same time also laid two—the normal clutch—and this bird, together with a mate, has been sent to Foxwarren in the hope of a breeding success.

* * *

NOTES

ACKNOWLEDGMENT.

The Editor acknowledges with many thanks, permission to print, and the loan of the block of, the portrait of the late Dr. Maurice Amsler, by the Editor of the *Journal of the Royal Horticultural Society*.

CORRECTION.

In the May-June number, page 106, line 26, for "Roughly speaking he is green, paler and yellow beneath" read "yellower".

* * *

CORRESPONDENCE

UMBRELLA BIRD IN NATIONAL ZOOLOGICAL PARK, WASHINGTON

To-day, 4th July, 1952, an interesting bird was added to the collection of the National Zoological Park. It is the Umbrella Bird, *Cephalopterus ornatus*. This bird was named in 1850, but in 1836 Swainson likened its crest to an umbrella. Shaw referred to the species as the Umbrella'd Chatterer. The bird is so called from the remarkable crest of feathers it wears, the shafts of which, when displayed radiate on all sides, reaching beyond the tip of the beak, and forming a perfect dome some five inches in length by four inches wide.

Another curious appendage is a cylindrical fleshy process, a plumed wattle, an inch and one-half long, pendent from the front of the neck, and clothed in imbricated feathers. The bird is about the size of a crow, its plumage entirely black, glossed with blue in places and especially on the crest and wattle. This species inhabits Colombia, Guiana, and a great part of Brazil and Ecuador. The Umbrella Bird is a member of the family Cotingidæ, the group that embraces the Bell Bird and the Cock-of-the-Rock. Its diet in captivity is rather simple. The bird seems to thrive upon hard boiled egg grated, Mocking Bird food, and all varieties of fruits such as banana, orange, cherries, and a bit of raw hamburger. It is also fond of mealworms and the larvae of other insects.

MALCOLM DAVIS.

[A photograph of the Long-Wattled Umbrella Bird, *Cephalopterus ornatus penduliger*, in the New York Zoo was published in the Avic. MAG. Sept./Oct. No. 1950.—ED.]

TURQUOISINE PARRAKEETS

I am writing about a letter that appeared in the Magazine of Jan.-Feb., 1952. It was from Mr. Boosey *re* some Turquoisines bred by a member in California.

I think I should point out that "Erythism" is fairly common among Turquoisines in the wild state; I have seen a lot of it. The Turquoise's main range is now in the Narrabri district, about 400 miles north-west of here. The red on these birds is quite characteristic. It differs from that in a Splendid in three main ways :—

- (1) It is commoner in hens than in cocks.
- (2) It is situated mainly, or completely, in the posterior part of the abdomen from between the legs to the vent.
- (3) It is a very much darker red, being to the red on a Splendid as that of a Maroon Tanager is to that of a Scarlet Tanager.

I once had a cock bird every feather of whose breast and abdomen was outlined in red. The late Mrs. Ike Winson, of Appin, N.S.W., had a cock that was almost *all* red, from beak to vent, and the patch on the wing covered almost the whole wing. It was a most beautiful bird. I have seen hens with a red wing patch but they are rare. Mrs. Winson's bird was trapped at Teny-Hi-Hi in the Narrabri district.

The Australian Museum in Sydney has a lot of these skins, donated by the late Mr. Wachsman and by myself. It may be suggested that these birds are hybrids. *This is not so.* They are *true* Turquoisines. I have no doubt that the Californian birds are showing some of this characteristic.

R. E. B. BROWN.

6 BAKER STREET,
NEWCASTLE, N.S.W.
AUSTRALIA.

(*The Editor does not accept responsibility for opinions expressed in articles.*)

*

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*

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NEW MEMBERS

The twenty-two Candidates for Election, proposed in the May-June, 1952, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

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HYLTON BLYTHE, 5 The Avenue, Flitwick, Beds.

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Sir EDWARD HALLSTROM.

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- G. T. MURRAY, to 821 Buchanan Street, Gary, Indiana, U.S.A.
- M. C. PUGH, to 18 Beech Road, Monmouth, Mon.
- W. H. SMITH, to "The Bungalow," Georgia, Nancledra, Cornwall.
- PIETER SWANEPOEL, to Box 366, Pietermaritzburg, Natal, South Africa.
- C. S. WEBB, to The Royal Zoological Society of Ireland, Phoenix Park, Dublin, Eire.

CORRECTED ADDRESS

H. MOODY, 91 Barbara Avenue, Uppingham Road, Leicester.

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Captain C. SCOTT-HOPKINS	1	2	0

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The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

Good aviary home wanted for very tame hen Jackdaw and pair 1950 aviary-bred Blackbirds.—Miss B. ADAMSON, 59 Wellington Street, Slough.

“AVICULTURE”

VOL. I

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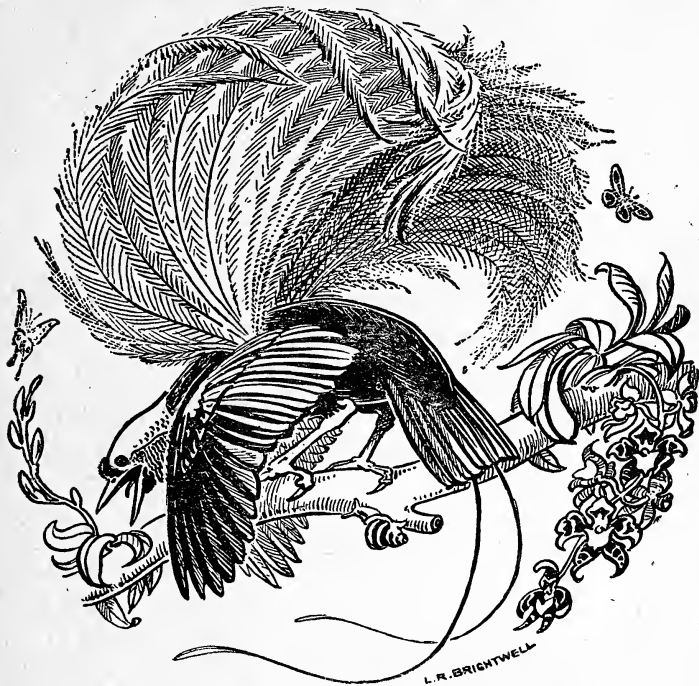
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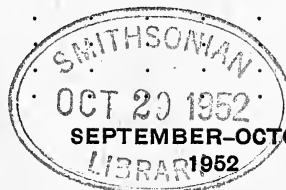
Birds

AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

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Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

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The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

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UPPER. ROCK GRASS PARRAKEET (*Neophema petrophila*), MALE.

LOWER. ELEGANT GRASS PARRAKEET (*Neophema elegans*), MALE.

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THE ELEGANT GRASS PARRAKEET

(*Neophema elegans*)

AND

THE ROCK GRASS PARRAKEET

(*Neophema petrophila*)

By EDWARD J. BOOSEY (Keston, Kent, England)

Every one of us must admire the untiring industry with which the late Mr. N. W. Cayley described and illustrated the birds of his native land, and in his *What Bird is that?* he has left behind him a truly admirable reference book on the birds of Australia, which will always be of inestimable value to both ornithologists and aviculturists.

As is often the case with very prolific painters, however, his work as a bird artist tended to be of uneven quality, and I personally consider the accompanying colour plate one of his less successful efforts, as it cannot be called an accurate portrayal of either of the birds it depicts.

While I should hate to appear in the role of a carping critic, I do think the mistakes in the plate should be pointed out, as there has always appeared to exist a certain amount of confusion in people's minds when it comes to identifying the various species of Grass Parrakeets.

To deal with the Elegant first : as to shape, it has not got nearly such a long, flat, snake-like head, and although this was possibly done by the artist to show the colours, no Grass Parrakeet normally sits with its tail spread as depicted in the plate. Then, as to colour, the Elegant is not, as the plate suggests, of the same grass-green as a Turquoise, but of a very beautiful golden-olive colour, which is peculiar to itself, and thereby differentiates it at a glance from all other Grass Parrakeets. The blue in the wing is not a more or less uniform dark blue (as in the Bluewing) but dark blue at the lower edge, with a very distinct line of pale turquoise above. The frontal band is not of a single shade of blue, but is dark blue bordered with pale turquoise at the upper edge. Finally, the underparts are golden-olive ; much yellower on the throat and cheeks ; and merging into pure golden-yellow on the

abdomen, in the centre of which, particularly in rather old males, there is often a patch of bright orange.

The Rock Grass Parrakeet has a more sharply-defined dark blue frontal band than appears in the plate, and there is certainly no reddish-mauve at the lower edge of the wing. Its extremely dull body-colour is of a shade difficult to describe, but as depicted in the plate it is much too green. I would say myself that it is of much the same drab rather nondescript greyish-olive colour as a hen Redrump Parrakeet.

The Elegant, while it does not compare with the Splendid or the Turquoise for brilliance of colouring, is nevertheless a very beautiful little bird in its quiet way, and the female resembles the male except that all her colours are duller and her green is more olive with much less yellow in it.

They inhabit South-Western Queensland, New South Wales, Victoria, and South-Western Australia, and spend much of their time on the ground feeding on the seeds of various grasses. They are said to be very shy in a wild state, sometimes, when disturbed, flying right away at a great height, and at others, flying low with a curious zig-zag flight before again alighting on the ground.

Elegants are among the most satisfactory of the Grass Parrakeets in confinement. I have kept and bred them regularly for the last sixteen years or so, and they were the only species of Grass Parrakeet we managed to keep going at Keston all through the war. They are also the only member of the Grass Parrakeet family to have become sufficiently well-established in a few people's aviaries in this country for one to see young ones offered for sale at fairly regular intervals. Bourkes, of course, are quite well-established, but they are not true Grass Parrakeets, being something quite on their own.

Regular and willing breeders as Elegants are, they seem—unlike other members of the family—always to go in for very small broods, consisting of two or at most three young ones. I originally thought that this might be a peculiarity of the various pairs we have had at Keston, but a gentleman who breeds them and wrote to me recently told me that his experience in this respect has been exactly the same as mine.

Elegants have a weak, inoffensive, sibilant cry, which they frequently utter in early spring, at which time they become unusually active. At other times, however, they are very quiet little birds—perhaps rather too much so—as they are inclined to spend most of their time sitting inside the shelter of their aviary.

We breed ours in a nest-box about 8 inches square by 18 inches deep, hung up under overhead cover in the flight, and with either a half coconut husk fixed in the bottom or, failing that, a filling of a few inches of decayed wood.

They will flourish for years on a diet of canary seed with a few groats, and a daily pinch of sunflower and hemp, and the amount of both the latter can be considerably increased during the breeding season. As one would expect, they are extremely fond of the seeding heads of grasses, and like most parrakeets they love spinach beet and can also be given chickweed, etc. Although not a fruit-eating species in a wild state, some pairs in confinement nevertheless become very fond of ripe sweet apple, and this should be given by pushing a thin slice through the wire netting, close to a perch.

Elegants are perfectly hardy and can be kept out of doors all the year round provided their aviary has a dry, draught-proof shelter, into which they can be shut each night during the winter months.

Of all the Grass Parrakeets, I must confess I have always considered the Rock Grass quite the dullest and least interesting member of the family, both as to temperament and colour. As to the latter, which I have described at the beginning of this article, its very dullness is probably a useful protection to a coastal bird which lives and breeds on the rocky cliffs and shores of South and Western Australia, choosing, in preference, we are told, "those facing the water and most difficult of access."

Quite unlike any other Grass Parrakeet, the Rock Grass's choice of a nesting site is much the same as that of a Jackdaw—namely the holes and crannies to be found on a cliff-face, preferably under an overhanging ledge of rock. Despite this, however, they are quite prepared to use an ordinary wooden nest-box in an aviary, and before the war a pair nested at Keston, but all the eggs were infertile. This, however, did not greatly surprise me, as the Rock Grass Parrakeet seems to share with the Orange-bellied (with which we had the same experience) a fatal tendency to become grossly overfat in confinement. Of course it is unfair to judge by the only pair one has ever had of any particularly rare species, particularly as one does not know their previous history, and it is quite possible that the extreme corpulence of our Rock Grass and Orange-bellied was caused either by old age or long cageing—or by a combination of both.

The pair of Rock Grass, in particular, used to remind me of two very old people who regard the slightest hill with horror, yet, in the Spring, they succumbed to a certain seasonal skittishness, and, after a few turns round the aviary, used to sit at opposite ends of it, and suffering from violent palpitations, look reproachfully at each other, as much as to say, "Is this sort of thing *wise* at our age—and with our infirmities?" I personally thought it far from wise, and was terrified that the cock—who was the fatter of the two—would drop dead of apoplexy at any moment, which, if I remember rightly, was what did eventually happen.

Rock Grass Parrakeets are much about the same size as Elegants,

and should be fed, housed, and treated in exactly the same way, except perhaps that, as to feeding, if the over-fatness of our pair was typical of these birds in confinement, they should be severely rationed to plain canary seed and green food, and should on no account be given such fattening things as hemp, sunflower, or groats, unless one was lucky enough to have a pair which bred successfully, when a small quantity of all three might be added to their seed diet.

* * *

FOREIGN BIRDS AT LIBERTY

By the DUKE OF BEDFORD (Woburn, Bedfordshire, England)

The keeping of foreign birds at liberty in this country has some of the charm, and also some of the dangers and difficulties, of falconry. In both cases you are using your ingenuity so to manage a wild bird, which is entirely free, that it will keep near either your person or your home. The beauty of many birds can undoubtedly only be seen at its very best when they are flying against a natural background of trees and sky, but the danger, of course is, that they may stray or be destroyed by birds or beasts of prey—and that is just too bad !

In general throughout my article when I mention certain species of birds as giving good results at liberty, you may assume that other members of the same group, fairly often imported, which I do not refer to, were tried, either by my father or by myself, without success.

Beginning with very large birds, i.e. the Cranes, it is necessary if success is to be achieved with those that are full-winged, for them to be able to range unmolested over a large area of ground as their breeding territories are of considerable size. To encourage full-winged Cranes to stay and nest it is necessary, also, to have ponds with rushes and similar vegetation round the edges. These ponds, however, need not be large ; it will even suffice if they are only a few yards in diameter provided that they are quiet and of the character just described.

The Indian Sarus Crane has given good results when full-winged and before the war Mr. Ezra was particularly successful with them. The drawback with Sarus is that the males, when in breeding condition, are apt to be spiteful with other large birds, and if these latter are pinioned they are apt to be overtaken and killed by the full-winged aggressor.

The Japanese White-necked Crane also does well full-winged. It is not completely trustworthy with ducklings, but does not regard them as a regular article of diet as does the White Asiatic Crane. The Stanley Crane might give good results at liberty, but we never fully reared any young birds.

The beautiful Manchurian Crane unfortunately is a very bad stayer.

Coming now to waterfowl, none of the wild swans are very good stayers full-winged, although a few Black Swans may occasionally remain where they have been bred, if territories are adequate.

Of the wild geese the Canadian and the Egyptian are of course now naturalized in certain parts of the country. Although so murderously spiteful towards ducks, etc. when closely confined, the Egyptian Goose when full-winged and living on large lakes, does not interfere with small ducks, but confines its quarrels to members of its own species and Sheld-Ducks, and to a lesser degree, to other geese. Snow Geese, both Greater and Blue, can sometimes be induced to stay full-winged and a flying flock is most ornamental. The same is true of Barnacle Geese. Magellan Geese and their near relatives the Ashy-headed and Ruddy-headed stay well at liberty where there is enough room for breeding territories. If at all overcrowded, however, they have a habit of showing their devotion to their own children by killing those of their neighbours! Most wild geese are extremely moral birds, but a sad and disgraceful tragedy once occurred at Woburn. A Magellan gander, whose mate was sitting, was seduced into a love affair by an unmated female. In due course his wife appeared with a family, and a little while later the other lady also appeared with a family. Whereupon, I regret to say, the gander assisted his wife in killing his illegitimate offspring!

The beautiful little Red-breasted Goose is, unfortunately, quite hopeless full-winged, no matter how you try and start them.

Of the Sheld-Ducks, the Ruddy may stay tolerably well on a large estate. Like the Egyptian Goose, it does not persecute smaller ducks when living under more or less natural conditions, confining its quarrels to other Sheld-Ducks and to Egyptian Geese.

Of the smaller ducks the Mandarin is the most successful, and is now well established in, to all intents and purposes, a wild state, both at Woburn and in the neighbourhood of Virginia Water. Success on a much more limited scale has sometimes been achieved with the Carolina. If, after starting with pinioned birds, some full-winged ones are staying well, it is necessary, before the breeding season, to dispose of the pinioned ducks or the full-winged drakes will persecute and kill them. The Chiloe Widgeon, though such a free breeder in captivity, is but a poor stayer at liberty, and the same is true of the Fulvous Tree Duck which may stay for a time, but usually strays in the end.

Of the gallinaceous birds, the Red Jungle Fowl does quite well at liberty, and Sonnerat's maintained itself at Woburn for a few years, although it is not considered to be entirely hardy.

All the pheasants of the Kaleege group, including the well-known

Silver, do well at liberty with a little winter feeding, but they are somewhat pugnacious and also decidedly addicted to egg-eating.

Both the Amherst and Golden Pheasants do very well at liberty, and establish themselves in an entirely wild state. The two species cannot, however, be kept together on account of their hybridizing so freely. Although they cannot be trusted with crocus bulbs in a flower garden, they are much less destructive than common pheasants to farm crops and garden vegetables. It is not true that they fight with, and drive away, common pheasants. It is indeed unreasonable to suppose that they would be able to do so as the cocks' spurs are blunt and rudimentary, and they are not nearly such heavy birds.

The splendid Reeves' Pheasant also maintains itself fairly well at liberty, although in much smaller numbers than the Amherst and Golden. It, too, does not interfere seriously with common pheasants. The gamekeepers at Woburn have never complained of their behaving in this way, and on only one occasion have I ever seen Reeves' cocks causing some disturbance by displaying to a common pheasant's harem. Hybrids with the common pheasants very seldom occur.

Elliot's Pheasants maintained themselves at Woburn in small numbers for several years, but they were ultimately wiped out by a very severe winter at a time when it was not possible to feed them.

Monsieur Delacour has been successful with *Crossoptilon* Pheasants at liberty, but the Brown species which we tried at Woburn did not do well, and failed to establish themselves. They were also very bad egg-eaters.

The Common Grey Peacock Pheasant did quite well at liberty as long as it was possible to provide plenty of winter feeding. Bamboo Partridges were also fairly successful under the same condition.

The Indian Chukor is a very charming bird kept at liberty in the garden in a half-tame condition. It usually roosts on the roof of the house. Mr. Ezra has been very successful with them at Foxwarren Park. At Woburn our success was more limited owing to the birds' extreme pugnacity. When the breeding season arrived two or three pairs divided the whole garden between them, driving away all the others which were never seen again. The cock Chukor, unlike the Grey Partridge, is a very bad father, taking no care of his family, and even at times killing them if he should happen to meet them.

The curious Australian Brush Turkey is not, of course, a gallinaceous bird. It does well at liberty if fed in the winter, and is interesting on account of its extraordinary nesting habits, but it is an extremely bad egg-eater, and it will in addition kill young pheasants.

Of the members of the pigeon family Malay Doves and Australian Crested Doves are by far the most successful provided, of course, that they are fed throughout the year. If Brown Owls are not too numerous some success may also be achieved with the beautiful little

Australian Peaceful Dove, but the Zebra Dove, which rather closely resembles it, cannot stand cold.

The South American Spotted Pigeon also does well at liberty, but the African Triangular-spotted Pigeon is sensitive to cold. At Woburn we had some success with a South African Wood Dove of the correct name of which I am not very certain. The neck and breast are vinous in colour; the wings bronzy green, and the forehead, especially of the male, is greyish-white. The young in first plumage are coloured rather like grouse.

Of soft-billed birds, the Red-eared Bulbul proved surprisingly hardy and an excellent stayer. Bulbuls should be fed on banana or other soft fruit, either on a trap feeding stand where Blackbirds and Starlings, which steal the fruit, can be caught and removed; or by covering the fruit with a kind of wire dish-cover arrangement through which the slender Bulbuls can pass, but the larger birds cannot. Bulbuls have one unfortunate failing: they are very pugnacious, and each pair insists on having a large territory, driving away their young as soon as they are independent. As a result the stock never increases.

Pekin Robins established themselves in the shrubbery containing much privet and bred for a number of years in an entirely wild state. In the end, however, they disappeared, and I do not think they could survive an exceptionally hard English winter.

With regard to seed-eating birds of the Finch family, the Dominican and Red-crested Cardinals can be bred at liberty. A very large percentage of those turned out, however, stray, and the pairs which remain have the same unfortunate habit as the Bulbuls. They insist on large territories and drive away all their young. I once induced a Virginian Cardinal to nest at liberty, but the young were destroyed by Jackdaws.

Saffron Finches I have also bred at liberty, providing artificial food throughout the year. As with the Cardinals, however, a very large percentage of those turned out ultimately stray.

Of the Australian Grass Finches, I had great success at Woburn one summer with Zebra Finches and Rufous-tailed Finches, large numbers of young being reared. Owing, no doubt to lack of skill, I have not, however, been very successful in wintering either Grass Finches, Waxbills, or even Weavers. Losses have been heavy after the birds have been caught up in autumn and taken into winter quarters, and with birds which go on breeding late into the autumn it is always a little difficult to avoid catching parents with young still in the nest.

Success on a much more limited scale was also achieved with Long-tailed Grassfinches, Parson Finches, and Diamond Sparrows. Gouldians did badly at liberty, proved poor stayers, and showed no inclination to breed.

The Orange Weaver, and its very near allies, is a most striking bird

at liberty and a fairly good stayer, provided, of course, that artificial food is always available. The cocks in colour darting about like little balls of fire, were a most lovely sight, and a fair number of young were reared.

Of Waxbills, I reared at liberty in my garden at Havant the Common, Orange-cheeked, Orange-breasted, Red Avadavat and Cordon Bleu. I also tried the curious and delicate Black-cheeked Waxbill at liberty and managed to get some of them in such excellent condition that they did not mind the early autumn frosts. When I caught them up, by reason of their largely insectivorous habits I put them in a warm greenhouse, but a few days after they were brought in they began to die in the most extraordinary fashion. One moment one would see them apparently in perfect health, tight-feathered and lively, and then, even as one watched them, they would suddenly fall dead from the perch just as if they had been shot.

A pair of Violet-eared Waxbills I managed to keep out of doors at liberty even through the winter, but they did not breed.

Of Parrot-like birds at liberty I have had considerable experience. I have never myself kept the parti-coloured Macaws, although they are said to be good stayers, and I believe the Red and Yellows and Blue and Yellows have bred in a state of freedom. The all-blue Macaw, which I have tried, unfortunately proved bad stayers.

We were not successful in persuading the Sulphur-crested Cockatoo to stay at Woburn, although it has been bred on one or two occasions elsewhere.

The beautiful Leadbeater's Cockatoo is one of the most satisfactory members of the family at liberty, being very ornamental and not destructive. The cock should be allowed to fly free for some weeks before his mate, confined in an aviary, is allowed to join him. As in all cases where perching birds are kept at liberty, a constant supply of food must be provided.

The quaint Gang-gang Cockatoo also does well at liberty if started in a similar fashion, but it is one of the few Cockatoos which are fond of fruit and is liable to cause trouble by damaging one's neighbour's apples.

The Roseate Cockatoo is a charming bird at liberty, and does no damage, but it is apt to wander rather far from home, and it is well to invite the forbearance of neighbours on to whose ground they may stray. Adult imported birds are unfortunately not good stayers, but young bred in one's aviary stay extremely well. Until they are through their first moult, however, they are somewhat delicate, and apt to pick up the germs of infectious disease. The bird to be released, after being accustomed to its feeding place, should be caged without food on the afternoon previous to its release. In the morning it should be taken in its cage to the roof of the aviary of the parent birds,

and allowed to find its way quietly out. A young bird released in this way will sometimes try and roost on the side of the aviary and adequate perching accommodation and shelter from wind and wet should therefore be provided, at least for a time. It is sometimes possible to accustom Cockatoos before their release, by gradual stages, to go in and feed inside a kind of box where the food is not visible from outside. The object of this device is to prevent the food being stolen by wild British birds. Two things must be borne in mind ; first that tits will sometimes find the food even though it is not visible from outside the box and, when this happens must be captured and taken away to a great distance before they have revealed the secret to many other members of their species ; second, that a Cockatoo, trained to feed in a box inside the aviary, will often fail to recognize a similar box on the top of the aviary as a source of food, unless for a few days the food is placed where it is visible and the bird, as it were, rapidly re-trained.

The Indian Ringnecked Parrakeet often stays fairly well at liberty, but it is extremely destructive to apples and must therefore be confined during the period of the year when the fruit is ripe or ripening. Unlike some species of Parrakeets, however, it is not a bud-eater, and can safely be allowed its liberty in the spring. A cock of this species inhabited Kensington Gardens for many years, where people used to feed him on peanuts. I got him a hen, but unfortunately he disappeared not very long afterwards.

The Australian Broadtailed Parrakeets, although certain difficulties attend their management, are among the most beautiful birds which one can have at liberty and, mainly before the first World War, I was successful, at Woburn, in breeding Barnards, Pennants, Adelaides, Red and Mealy Rosellas, and Redrumps. It is, however, only the large members of the genus which are safe from that curse of liberty aviculture, the Brown Owl. Rosellas are rather on the border-line of the species which can bite hard enough to defend themselves from the owl's attacks and Redrumps definitely cannot do so, which is a great pity, as they are one of the most charming species to keep at liberty, and one of the best stayers, besides not being destructive in the garden. If an attempt is made to keep Redrumps at liberty and one of a pair should fall a victim to a bird of prey, a new mate must be provided at once or the survivor will stray in search of one.

With Broadtails, unlike Polyteline Parrakeets, it is the cock who decides the movements of the pair, and a cock who is a good stayer will induce his wife, or wives, if a casualty among his partners should necessitate a replacement, to remain in the vicinity of the owner's home. Some pairs of Broadtails have a maddening habit of staying until the very beginning of the breeding season, and then clearing off for good, just when one feels certain that they are safely established, but a cock

who has once bred in, or near, the garden, will not leave his home as long as food is provided and a mate is with him.

In places where natural hollow tree trunks are scarce, plenty of nest-boxes must be provided, and care must be taken to see that they are not appropriated by Starlings, which can be a great nuisance in the spring, some pairs being very pugnacious and able to drive away even the more powerful Broadtails. Troublesome Starlings should be shot, preferably with a weapon which does not make much noise, and the rubbish they have put in the boxes cleared out. Fortunately it is only for a short period that they are troublesome, as they are single-brooded and, before a very late date in the spring, each breeding pair has found nesting accommodation somewhere. The principal misdeeds of Broadtails are too great a fondness for fruit tree buds when these are swelling in the spring, and also a taste for ripe apples in the autumn, although they are nothing like as destructive in the orchard as are members of the Ringneck family. The young of the larger Broadtails bred at liberty at first come with their parents to the feeding place, but later many of them become very independent and wander to considerable distances, living on natural foods. Adelaide Parrakeets during the first World War maintained themselves as completely wild birds for a number of years, without any artificial feeding at all.

Occasionally pairs of Broadtails at liberty are troublesome in fighting captive pairs of birds of the same genus in their owner's aviaries, the danger being greatest when the confined birds belong to a smaller species capable of putting their beaks far through the wire-netting. There is then a great danger of their getting their upper mandibles bitten completely off, as once happened to a Hooded Parrakeet of mine when fighting with a liberty Barnard.

When starting a pair of Broadtails at liberty, it is advisable at first to release the cock and then allow his mate to join with him when he knows his way about the garden.

Cock King Parrakeets, whose mates are confined in aviaries make charming liberty birds, being very decorative, quite safe from owls, not really destructive, and never going more than about a hundred yards from the place where their mates are confined. They are also not pugnacious. In the breeding season it is an easy matter to entice them back with food and an inward-pointing funnel of wire-netting, into their mates' aviaries.

Cock Crimson-winged Parrakeets, whose hens are confined, also make delightful liberty birds, not only by reason of their gorgeous colours but also because of their buoyant and distinctive flight. As they are rather weak-billed and might not be entirely safe from owls, it is well to treat them as day-liberty birds. The process of training a day-liberty cock is as follows. An aviary must be prepared

next to that occupied by the bird's mate and he is placed in it and accustomed to feed from a dish on a bracket in the front of the flight, opposite which is a small door about a foot in diameter. When he is thoroughly accustomed to this feeding place, the door may be left open and he may be allowed to find his way out. During the first day or two he must be carefully watched so that he may be assisted in finding his way back inside the aviary when he gets hungry. At first it is often a good plan to have a second dish of seed husks and rubbish which looks like seed on the outside of the aviary close against the entrance door, and exactly opposite the dish containing real seed within. A suitable arrangement of perches should make it easy for the bird to find his way to this dish and thence inside, for when he discovers that the outside dish contains practically nothing worth eating, he will soon move to the second dish inside, from which he has been accustomed to feed. For the first day or two it may be well to dispense with the funnel of wire-netting which is introduced later, and shut the bird into the aviary when he has entered for his afternoon feed. The funnel should consist of a tube of wire-netting of suitable size and length on a small wooden frame which can be pushed into the small entrance door at mid-day in winter and proportionately later as the days get longer. A bird entering the aviary through the funnel to feed cannot normally find his way out again, and is thus safely confined for the night. The end of the funnel should be quite close to the inside feeding dish, but, especially when birds are accustomed to its use, it should be so arranged and should be of such a length, that a bird entering it to feed from the dish cannot easily find its way out again by stepping from the dish into the mouth of the funnel. This is particularly necessary in the case of Crimson-wings, which are rather intelligent birds. Later, if such a course of action should be advisable to prevent the nuisance of wild British birds getting into the aviary to steal the seed the main feeding dish can be placed inside the shelter where the bird has at some time or other been accustomed to find it. For a while the outside dish should be left to act as a bait, even though it may no longer contain anything but seed husks, but later when the bird has been thoroughly well trained, even this dish can be dispensed with.

It is impossible to keep hen Crimson-wings at liberty, not because they stray badly, but because they insist in going down the chimneys of houses, ultimately coming to an untimely end.

Barraband's Parrakeet is another most attractive day-liberty bird, but it is essential to confine it at night or in winter it is certain to be destroyed by owls. A cock Barraband who knows where his mate is confined will never leave the vicinity of her aviary, but it is essential to use a wild bird for this purpose as aviary-bred ones behave extremely foolishly when first released and are apt to lose their heads and their

way. A wild cock may fly backwards and forwards in rather an alarming way with his swift and lofty flight, but, if his mate calls, well there is little risk of losing him, and once he has come down on to the aviary there is no danger that he will leave her. It is, however, very important that her aviary should be next to the one in which the cock spends the night as, if the liberty aviary is too far from the hen's aviary, the cock will be reluctant to enter it unless very hungry, as he will dislike being out of sight of his mate. Young birds may sometimes be flown at liberty with their father, being trained one by one. The speed and grace of their flight when they are in a frisky mood is a joy to watch, and no British bird can show anything comparable. Unfortunately, however, after a few weeks, young Polyteline Parrakeets become uncertain stayers and should be caught up and disposed of. If the owner is tempted to take a chance with them, he can wait until they spend one night out, returning on the following day, but this is definitely a danger signal, and if it should be ignored they will return no more. Young hens are even worse stayers at liberty than cocks, and are hardly worth training.

The Rock Peplar Parrakeet, while less ornamental in plumage is, if possible an even more beautiful flyer at liberty than the Barraband and its treatment and handling should be the same. Cocks of both species will agree tolerably well in the liberty aviary out of the breeding season, but are likely to become quarrelsome about February or March, when they must be returned to their partners.

I have had some success with Peachfaced Lovebirds at liberty during the summer only, as this species is not altogether hardy. When Lovebirds are released, it is necessary to provide them with plenty of nest-boxes covered with wire-netting if there is a danger of grey squirrels gnawing the wood. The size of the entrance hole must also be very carefully regulated by means of experiments with living birds, being just large enough to admit the Lovebirds, but too small to admit Starlings, which will otherwise take possession of every box. A metal ring round the entrance hole will prevent undesirable British birds from enlarging it. Madagascar Lovebirds I have also bred at liberty, but they, too, must be taken in during the winter, and care must of course be taken to make sure that parents with young still in the nest are not caught up in the autumn. This applies to all birds which do not stop breeding when the summer is over.

Red-faced Lovebirds I kept successfully at liberty throughout the year, but even under these conditions they made no attempt to nest.

The beautiful little Passerine Parrotlet, or Blue-winged Lovebird, I have also bred at liberty during the summer months. They should be caught up for the winter with the usual precautions with regard to late nests. When in good condition they are unfortunately very savage and quarrelsome, and adult pairs must be kept separate.

It is only birds in rather poor condition that can safely be crowded together like Budgerigars.

Budgerigars, after some initial failures, I have now succeeded in establishing as day-liberty birds which return to the aviary to feed and nest.

The flight for a liberty aviary for Budgerigars should contain far more protection from wind and wet than an ordinary flight. A wide portion of the centre, and a smaller portion of the two ends should be covered over with some waterproof material. The nest-boxes should be hung almost all the way round the top of the aviary flight, and they, too, should have some overhead and side protection from direct sun, wind, and wet. There should be about three times as many boxes as there are hens to start with, and there should be a wooden partition between each nest to prevent a jealous hen sitting outside her own nest, from seeing other hens sitting outside theirs and being tempted to attack them.

In one corner of the flight, preferably near the entrance hole to the shelter, an exit hole in the wire-netting roof should be constructed 6 inches in diameter. When the exit is in use a moveable cross-piece of wire should be fixed over it to prevent the entry of such large birds as Sparrowhawks. Immediately underneath the exit hole there should be a box containing seed, which should be cleaned out once a week. In the floor of this box there should be some drainage holes and the sides should be made climbable with wire-netting in case the box should fill with water during heavy rain in spite of the drainage holes. Immediately beneath the exit hole there should be suspended a removable ladder of little perches, the top rung of which is $4\frac{1}{2}$ inches below the hole, while the bottom rung reaches nearly to the seed in the feeding box. An extra dish of seed should be provided inside the shelter which must be well-lighted, dry, and cosy, and liberally furnished with small perches near the roof. In the flight, in addition to permanent perches, there should be plenty of natural branches, changed when they become dirty, under the sheltered portions. In summer these branches should be stripped of leaves before they are put in place as if this is not done they tempt birds to roost in the flight and not in the shelter. It is sometimes desirable to alter the height of the top rung of the exit ladder. If it is $5\frac{1}{2}$ inches below the cross-piece of wire over the hole it will make exit difficult and tend to confine to the aviary birds untrained to fly at liberty which are likely to stray; and also very newly-fledged and helpless young ones. The higher up the top rung, the easier the exit.

In order to confine the birds at night and prevent them from being taken by owls, a wire-netting funnel, $3\frac{1}{4}$ inches in length, 4 inches in diameter at the entrance, and $1\frac{5}{8}$ inches in diameter at the tip, should be constructed. Every afternoon, at least three hours before sunset,

the ladder should be unhooked ; the cross-piece of wire removed ; and the funnel inserted until the following morning when, as soon after daybreak as convenient, the funnel is removed and the ladder and cross-piece of wire again placed in position.

If a start has to be made with birds that are not trained homers—and even the latter are used—the same procedure is not inadvisable in the strange place—the Budgerigars should be confined to the aviary until the young of the first round are leaving the nest, when the exit hole can be allowed to operate. It will probably then be found that few of the breeding birds trouble to go out, but of those that do, some may stray and be lost while a few may return and prove homers. Losses from straying are likely to be much greater among cocks than among hens. Practically all the young birds will soon find their way in and out and for a short time nearly all will stay, but during the ensuing eight weeks a considerable number will wander away. At the end of that period, those that remain will be beginning to come into breeding condition, and the hens will make their choice from among the vacant nest-boxes. Although this early breeding would be considered inadvisable with birds that are confined, it does no harm to young liberty birds to have one nest, provided they lay before 15th August. After that date all hens that start entering the nest-boxes should be removed to the adjoining “ resting ” aviary in which hens are confined to prevent unseasonable or excessive breeding and in which the adult females are also placed directly they finish rearing their second brood and start making preparations for the third. Cocks should never be confined as, if they are shut up for very long periods, they may stray when again released, but hens once they have bred in the aviary do not forget their homing. The “ non-exits ” which never go out at all, usually also remain “ non-exits ”.

Care should be taken to watch the behaviour of the young hens which are coming into breeding condition, to see that they do not enter undefended nest-boxes containing young that have not yet flown and injure the latter. Such hens should be got rid of as they are unsuited to a community aviary. As a check on their activities, breeding hens which always lay their second clutches in the same nest as the first, are preferable to those which seek new nest-boxes for their second broods, and are therefore not in a position to protect the youngest members of their family from invaders.

When it is desired to add new colours to a liberty aviary, it is on the whole best to obtain young hens which have not yet bred, and confine them to the aviary for a few days until they have chosen their nest-boxes and mates. Although this method of introducing new colours is not ideal, especially with the sex-linked varieties, it is on the whole preferable to the alternative plan of introducing new cocks as the latter so often stray and, in addition, are apt to get ill more

frequently than birds that are acclimatized to the aviary. Hens which have nested by themselves in cages or small single compartment aviaries, are apt to be troublesome in a community aviary as they seem to experience great difficulty in deciding which box to choose and are more prone to disregard their neighbour's rights of property and quarrel with other hens already nesting, sometimes with dangerous results.

Late February or early March, according to the season, is the best time to begin putting up the majority of pairs for breeding, but, as the most attractive show with Budgerigars at liberty is provided by the *young* birds (the breeding adults being rather stay-at-home), it is desirable, while avoiding over-breeding from individual pairs, to have a succession of young leaving the nest over as long a period as possible. If the owner of the birds does not live too far north, and if the season is not too severe, it is sometimes possible to arrange for one or two early broods to leave the nest from the middle of March onwards. For the production of these, strong, fully-matured hens which have not been overworked during the previous season, should be selected. Care must be taken to see that their water does not freeze, by using a night-light in a small box underneath the water dish, so arranged that the contents of the latter, while never too hot, are also always liquid. Spinach beet in moderation and any chickweed that can be found must be provided, as well as a little sweetened milk-sop.

It will usually be found that the majority of the hens in an aviary prefer nest-boxes with the entrances facing north. If this should prove to be the case, in order to prevent the main breeding team of hens disturbing and interfering with the early breeders, when they are first put into the aviary, it is well to remove, for a time, all the nest-boxes which have the most favoured aspect, and oblige the early breeders to use the boxes which are not likely later to be in any great demand. In general, however, nest-boxes should be left up in the aviary throughout the year and only taken down for cleaning purposes. The cocks enjoy fussing around them, even when they are not mated, and I think the presence of the boxes tends to promote their attachment to their home.

As a rule, only about 25 per cent of the young bred from non-homing parents prove homers, but percentages tend to improve by about 25 per cent with each succeeding generation. The really established birds are as faithful to their homes as homing Pigeons, and rarely go more than a hundred yards from their aviary.

Liberty Budgerigars have the great merit of being completely harmless to fruit and vegetation, and of all foreign birds the most decorative. It is naturally desirable to place the liberty aviary close to a tree, and if there is an evergreen shrub with rather sparse foliage also in the immediate vicinity, it will prove attractive.

RECORD OF HYBRIDIZATION IN SCREAMERS

By KEN STOTT, Jr. (San Diego, California, U.S.A.)

On 7th July, 1952, a hybrid Screamer baby was hatched by its parents in the Scripps' Flight Cage, Zoological Gardens of San Diego, California. The male parent was a Black-necked Screamer, *Chauna chavaria* (Linné) and the female, a Crested Screamer, *Chauna torquata* (Oken). Due to the great size of the cage and the shielded location of the nest, the exact incubation period could not be determined, but it is to be assumed that it was about forty-four days, in other words, approximately that of the Black-necked Screamer, of which many have been hatched here in the Zoo. Mr. Lint, Curator of Birds, removed the adults and the chick, shown in the accompanying photograph, and placed them in isolated quarters where the young bird might have a better chance for survival.

* * *

BREEDING OCELLATED TURKEYS IN THE
ROTTERDAM ZOO "BLIJDORP"

By IR. F. J. APPELMAN (Rotterdam, Holland)

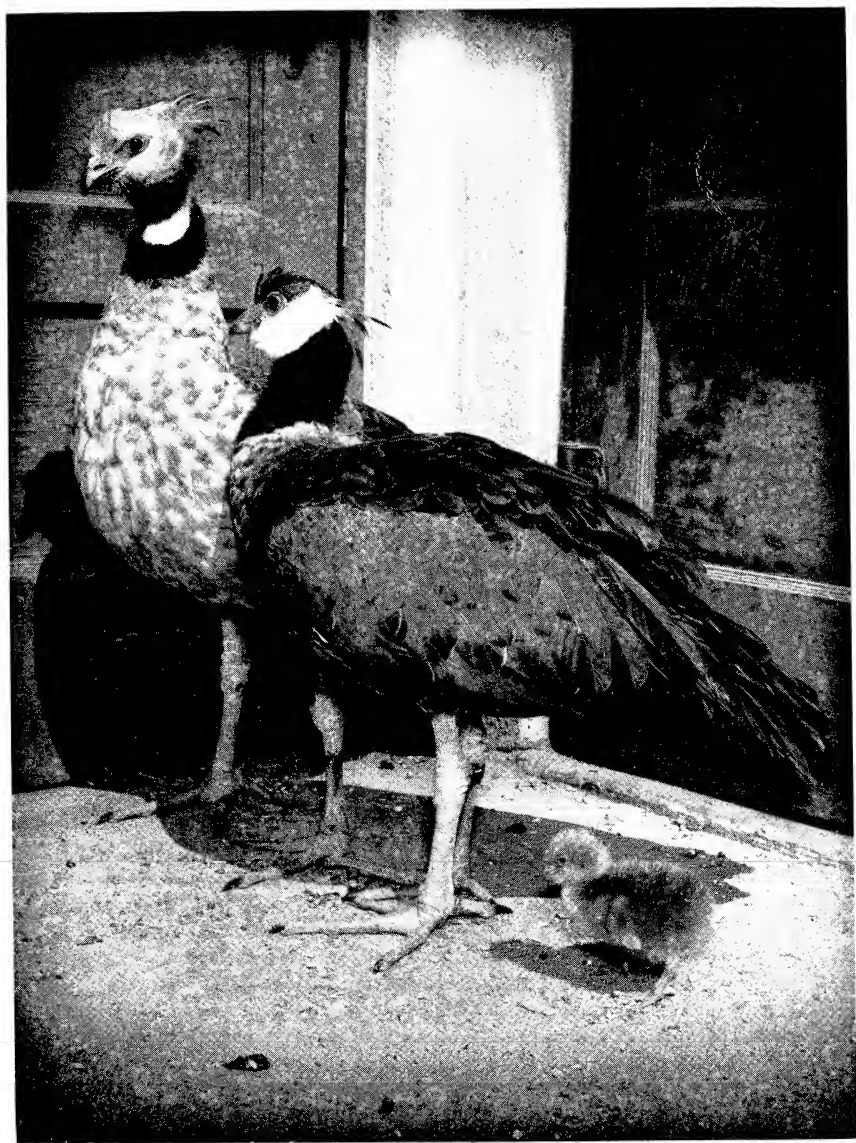
In 1950, Mrs. Belle J. Benchley was so kind as to let the Rotterdam Zoo have a male and a female Ocellated Turkey, reared in the San Diego Zoo. They were young adult birds, already in fine plumage. In 1951, the hen laid 18 eggs, unluckily all infertile; the cock seemed too young, for he did not display.

This year (1952) the hen laid 31 eggs, and during the whole time the cock wooed his hen constantly and never stopped displaying for nearly six weeks. The result was 22 fertile eggs. These were brooded partly in the incubator (12 eggs) partly under tame turkeys (10 eggs).

Fifteen eggs hatched, but some of the youngsters had badly crooked toes and some others crooked necks. Therefore we had to dispose of three inferior youngsters, and one was eaten by rats.

At the moment of writing this small article (August, 1952) we still have eleven fine young Ocellated Turkeys, which are doing exceedingly well.

Contrary to what has been written in M. Delacour's article in the July-August number of this Magazine, we had little trouble in raising the young Ocellated Turkeys. The oldest are already getting their glorious plumage. In our opinion, however, they are by no means growing as fast as the youngsters of common tame turkeys, and we wonder if this is only normal for this species.

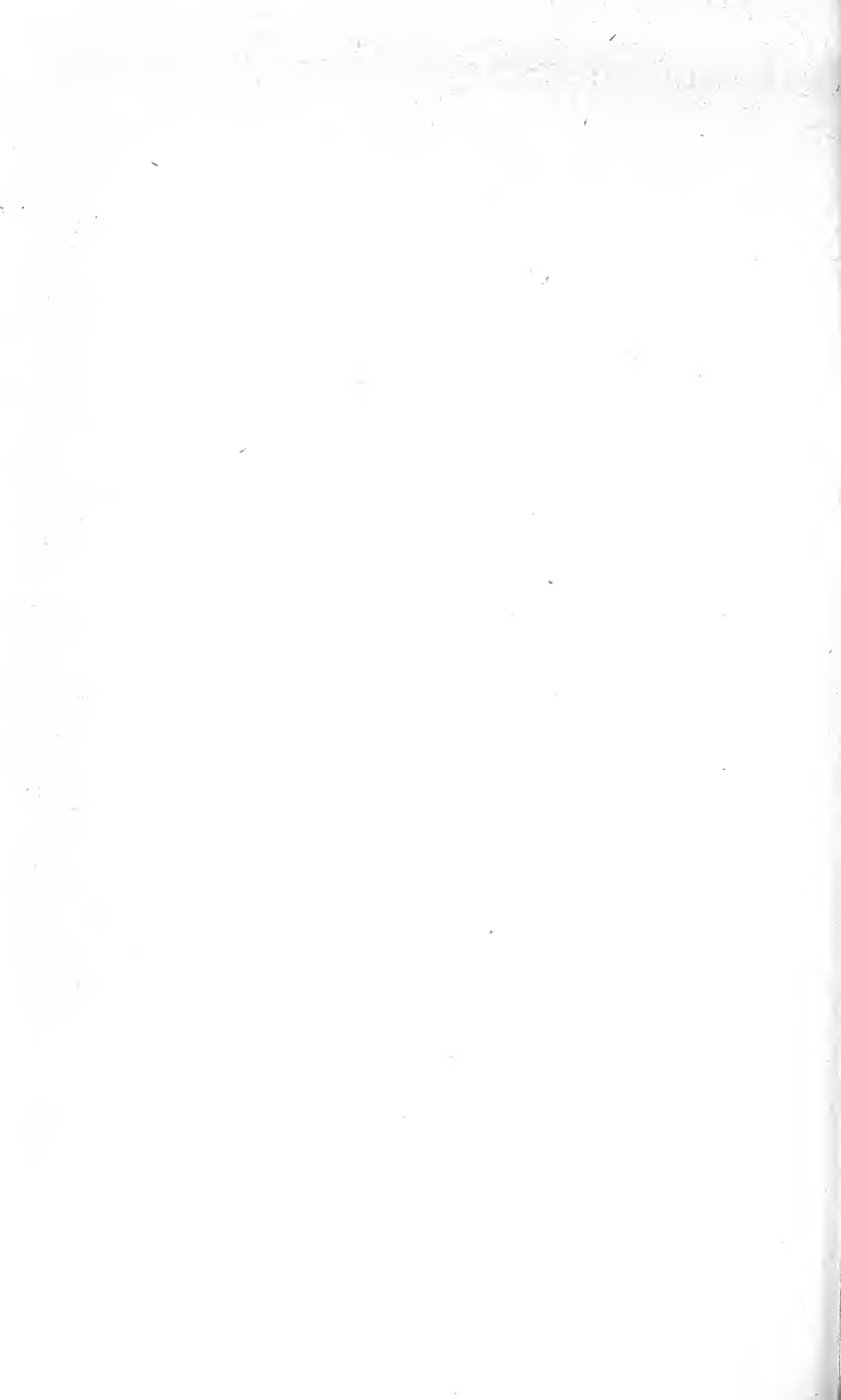


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[Zoological Society of San Diego

CRESTED SCREAMER FEMALE (*left*), BLACK-NECKED MALE (*centre*), AND
HYBRID CHICK.

[To face p. 170



THE FEEDING OF EUPHONIAS, VASSOR'S TANAGERS, RED-EARED TANAGERS, HOODED MOUNTAIN TANAGERS, AND RED-CRESTED CHATTERERS

By CHARLES CORDIER (New York, U.S.A.)

It has been my lot to collect in Ecuador twice, with an interval of two years. During my first collecting trip the feeding of the above birds presented an almost insoluble problem. These birds were tried, of course, on our standard Tanager food made up of boiled brown rice, washed with cold water after cooking to get the stickiness out, boiled minced fowl's eggs (one egg per ten medium sized Tanagers), grated carrots, soaked currants if available, dried off with Zwieback-meal and Pablum, a pre-cooked cereal. The proportion of Zwieback-meal (bread crumbs) and Pablum is three of the former to one of the latter.

Some of these birds would take to the food, which is ideal for Tanagers, but after a few days or weeks would taper off their food-intake and die. All of these species learn to like diced bananas, of course. However, the kind of bananas sold in the temperate zone and praised so highly for their nutritional value, will not sustain the life of a bird for more than a few weeks or months at the most. Another matter are certain types of bananas called plantains which are much more nourishing and will keep birds healthy for years. Not being readily available in the markets of the temperate zone, one might, as well, forget about them.

I have often had the opportunity of observing the feeding habits of these species in nature and noticed that most of them consume great quantities of mistletoe berries of which certain kinds attain the size of small cherries. Others, again, go for small whitish berries which seem to contain very little nourishment. Next time you see your Euphonia whipping its tail after expelling waste do not worry, it happens in the wilds. Besides the very great quantities of berries these birds consume daily, it can be safely assumed they occasionally do get hold of some insects.

In order to duplicate their natural food as nearly as possible, I hit upon the idea of making a paste, consisting of the above described Tanager-food and bananas, by taking equal proportions of each and mixing them thoroughly with a fork. In late afternoon this paste is discarded and replaced by bananas and other ripe fruit in season, such as pears, blue-berries, grapes, cherries.

This way of feeding is also ideal for Sugar Birds. The paste is not over-nourishing, contains enough proteins and is moist, exactly to their liking.

COMPARATIVE STUDIES ON THE BEHAVIOUR OF ANATINÆ

By Dr. KONRAD LORENZ (Dulmen in Westfalen, Germany)

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Translated by Dr. C. H. D. Clarke, Division of Fish and Wildlife, Ontario, Canada

(Continued from Volume 58, page 94)

XIV. THE EUROPEAN TEAL *Nettion crecca* (L.)

A. GENERAL.

The native Teal differs, to its discredit, from almost all other Anatinae, even from its close North American relative, *N. carolinensis*, in being one of the most stubbornly shy birds I know. Neither free on the pond, nor enclosed in a small yard, did wild-caught Teals ever become passably tame with me, so that in spite of painstaking and careful observation through field-glasses I know less about their behaviour than about any other bird I have kept. Next year I hope to get eggs and breed a number of young tame Teals.

In colouring the Teal has much in common with the Mallard and the Chestnut-breasted Teal. As in both of these, the colour of the head contrasts sharply with that of the neck, while the speculum is black and green like that of the Chestnut-breasted. The speculum of *N. flavirostre* is even more like that of *Virago*. Teal ducklings and those of its Chilian relation, *N. flavirostre*, have a peculiar head marking, an almost uniform dark colour on the sides of the head.

B. THE NON-SEXUAL REACTIONS AND NOTES.

While in every respect the female is like a small edition of the female Mallard, the drake differs from the Mallard drake in being completely voiceless. The "krick" whistle, his only call, which is certainly homologous to that of the Chestnut-breasted drake, combines the functions of call-note and warning, like that of the Chestnut-breasted. Although the "krick" whistle is used in the social play of drakes, it has, because of its frequent use, entirely lost its significance as a courtship call and has become, in every respect, the sole representative of those calls of the Mallard which belong to the class of non-whistling sounds. Teals whistle under circumstances in which no other surface-feeding drakes do, for example, in fear when a person is coming near their pen.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

I have never seen nod-swimming in my few, shy female Teals, but

I would not say that it is lacking in the species, a thing I can definitely say about *N. flavirostre*. In all other actions and calls the European Teal is exactly like the Mallard except that her voice, because of her small size, is pitched higher.

D. SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of Display.*

The ceremoniousness and solemnity of display is at least as great as it is with the Mallard. The drakes have to move together, get into the right position, shake their bills, etc., for a long time before the first whistle comes. Unlike the Mallard, but similar to the Pintail, Bahama, and Garganey Teal, they try to procure the presence of the female, and should the latter swim away they interrupt their display in order to swim in pursuit of her. Having come up to her, they start over again with the moving together and the shaking. In other respects their dance looks much like a film of the Mallard which is run off too fast. All the movements and whistles as well as the repeated drinking acts, shaking, etc., follow each other so fast and in such haste that the observer cannot get his breath. The whistling of my four drakes sounded as though it were continuous. Then the display dies down abruptly and one is aware he has seen and noted only a fraction of the acts.

2. *The Drinking and Introductory Shaking.*

These are exactly like those of the Mallard, except that they do not last as long and, corresponding to the smaller size of the species, the rising and dying off of each emotion follows more quickly than in *Anas*. I have never noted mock-preening.

3. *The "Krick" Whistle.*

This, which as I have already said, is used frequently outside the social display, has two syllables. It would be more accurate to call the "Krick" duck the "Kedick" duck for the lower mandible snaps down at the "d" between "u" and "i" just as jerkily as in *V. castanea* and *gibberifrons*, the mechanism of whose syrinx is obviously the same during this whistle. When uttering this whistle, the head does not need to be raised at all, a thing which is of importance both for the frequency and the ease of the utterance.

4. *The Grunt-whistle.*

This is quite the same in the movement as that of the species already discussed. The tone is soft and flute-like. There is no grunt.

5. *Head-up-tail-up.*

In the Teal this plays an important role, a thing I had suspected from the markings on the tail. The yellow triangles of the under-tail

coverts, cut sharply by the black, are instantaneously spread and show to good advantage. The head-up-tail-up occurs in two different connections. The connection that I have seen most frequently is marked by the lack of the succeeding burping. Instead of this, there is chin-lifting without lifting the head, or stretching the neck. In another sequence of acts, which seemed to occur at moments of greater intensity, the head-up-tail-up is immediately followed by burping, just as in the case of the Mallard. This burping is always accompanied by a very intense turning of the head towards the female (Fig. 35). The head does not go very high. When it has reached its highest point, a "krick" whistle follows. From the fact that the whistle occurs, in this case, in the same connections as the usual burping whistle occurs in the Pintail and the Chestnut-breasted it seems certain that it has been derived genetically from the latter.

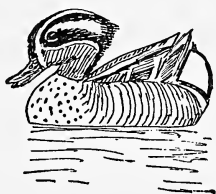


FIG. 34.—The head-up-tail-up of the European Teal. Notice the optical effect of the yellow triangles of the sides of the tail. Compare Figs. 12, 22, 24, 51.

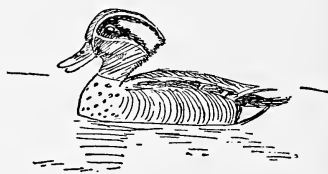


FIG. 35.—The burping of the European Teal drake, *Nettion crecca* (L.). Compare with Figs. 20, 24, 39, 46, 50.

As in the Mallard, the burping never comes as an isolated action but in conjunction with the head-up-tail-up. While the head is being raised, those feathers of the head and neck which had been lying on the back remain pressed together sleekly, as if they had lost all elasticity. The back edge, with which the contour of the head merged into the back when the head was drawn in, now stands out sharply and forms a little tuft at the back of the head. That is precisely why it is there and it has the same function in *N. flavirostre*, in whose case the morphological differentiation of the tuft goes further.

6. Bridling.

This occurs solely as a completely independent action of display. The head goes even further back than in *Virago* if that is possible. In his description of the Teal and Mallard display, Wormald has put this bridling with the head-up-tail-up, for he says, concerning the Mallard's head-up-tail-up, that the same movement is still more developed in the Teal. He says "he makes his head and tail meet over his back". Doubtless he meant the bridling movement, which

is in no way homologous with the head-up-tail-up in accordance with all we have said. The whistle uttered has one syllable.

7. *Chin-lifting*.

This always follows very slowly and is usually apart from the courtship-play proper. As with the Chestnut-breasted drake, the position is held for a long time. The head lies deep in the neck, as it does in this act with the Wigeons. The significance of the movement is the same as it is in the Mallard. One sees it repeated again and again by the drake that is "politely" solicitous for the comfort of his duck.

8. *Turning the Back of the Head*.

This is not performed while holding the head high with raised bill and smoothly lying feathers, as we have seen in the Mallard, Chestnut-breasted, and Carolina drakes (Fig. 15). Rather, the head is indrawn, the neck expanded, and the plumage of the head and neck is puffed out as in the Pintail (see Fig. 23). I had suspected this because of the pattern of the markings and the structure of the feathers.

9. *The Combat of the Drakes and the Post-nuptial Play*.

Both these are unknown to me.

XV. THE CHILIAN TEAL

Nettion flavirostre (Vieillot)

A. GENERAL.

This species is doubtless very closely related to *N. crecca*. It is, however, much more highly specialized in a very distinctive manner. The two sexes, being altogether the same colour, which is perhaps connected with the fact that the males take care of the young, would not be in itself an important taxonomic character (think of the corresponding difference of the closely related *Anas* species) as are the instinctive actions of the drake's care of the young. Worthy of note is a surprising convergence toward the geese, in which group the male also takes care of the young. This convergence lies in the fact that an action, signifying an originally hostile threat, has become the expression of a greeting always occurring upon the union of a family. Quite unique in the *Anatinæ* is the fact that the action is performed by the day-old duckling, just as young geese stretch out their necks. The great similarity which exists in the colour of the bills and plumage in *N. flavirostre* and *D. spinicauda* is a point emphasized by many classifiers. On account of that, Boetticher has created the genus *Daflonettium* for the Chilian Teal, and has placed it as an intermediate between the Teal and the Pintail. I cannot agree with this opinion in any respect. In spite of all peculiarities *N. flavirostre* is a true Teal as far as behaviour, actions, and the plumage of the ducklings are con-

cerned, and is doubtlessly much more nearly related to the Chestnut-breasted Duck than to *D. spinicauda*. Remember the colour of the speculum, the whistle connected with the bridling movement, and the "krick" whistle. The similarity of the colour of the bill probably rests on corresponding mutations which can bring forth absolutely similar colour designs even without blood relationship as, for example, the so-called "markings" on the wings of very different kinds of wild and tame pigeons. *Anas undulata* has almost the same markings on the bill, although it is not closely related to *N. flavirostre* or *D. spinicauda*. The plumage of these two species are, moreover, alike only in colouring and not at all in the fine markings, which in *flavirostre* are clearly Teal markings.

B. THE NON-SEXUAL REACTIONS AND NOTES.

Conversation and call-notes of both sexes correspond in general to those of *N. crecca*. Besides the latter, it is the only species that I know



FIGS. 36-37.—The first and second phase of the gesture of greeting of the Chilian Teal drake.

the drake of which can whistle without any head or neck movement. The ordinary call-note and warning whistle is used even more easily and frequently than is that of the Teal; it consists of one syllable, but sometimes it is uttered in such quick succession that it resembles the conversation-call of the Mallard, both in rhythm and meaning. One can say that in the drake of *N. flavirostre* the substitution of the ordinary conversation-call by the courtship-whistle is carried furthest. In addition to this, on any excitement, especially when he finds his mate after a short separation, the male performs a most peculiar, indeed unique, ceremony of greeting which has nothing to do with the display proper, and is never used in connection with social display. The drake stretches his head, with the bill held horizontally close to the ground, just as all surface-feeding drakes do, including the domestic drake, when they are threatening. During this action he utters a rapid and many syllabled twittering, perhaps like "rutiu-tiu tiu tiu tiu". Before his head is stretched out it is bent straight down (Fig. 36), and the tuft on the neck sticks straight up. The next moment the tuft disappears completely with the goose-like stretching of the neck (Fig. 37). The drake very often answers the female's inciting with this action. My *flavirostre* duck laid three eggs and then deserted them. I let a bantam hen hatch them and I got three healthy ducklings. To

my boundless astonishment all three ducklings answered my imitation of the duck's leading call with a fully developed greeting ceremony. Their twittering did not sound any different from that of any old drake. The ducklings greeted me and each other with this ceremony after each separation. It could be elicited in other, less specific, circumstances. The way it is performed and the circumstances which call forth the head stretching and greeting are astonishingly similar to those eliciting "greeting" in Grey Lags and other geese. In comparing the two clearly analogous actions of *Anser* and *Nettion* the problem of origin is interesting. Both spring from one homologous root, namely out of the threatening stretching forth of the neck, which with few exceptions (*Chlephaga*) are peculiar to all *Anatidæ*. But the process of evolving a "ceremony of friendship" out of a gesture of threat has surely been gone through independently by *Anser* and *Nettion*. The common root of this convergency very probably lies in the male's taking care of the young. It is an interesting and thought-provoking case in connection with developing ideas concerning homology and analogy. As all my three *flavirostre* ducklings developed into drakes, unfortunately I do not know whether young females also perform this action and lose it later or whether sex dimorphism is developed fully on the first day. Both answers would be very interesting.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting*.

This is like that of the European Teal, but has definite and certainly significant similarity with the characteristic cadence of the Chestnut-breasted Duck. The head moves well downward and backward, like that of the Mallard. The body is not held up as in the case of *Dafila acuta* and *D. spinicauda*. Also the creaking "Arrr", so characteristic of the Pintail, is lacking.

2. *The Decrescendo Call*.

This holds the record among all surface-feeding ducks for the number of syllables. The second syllable is loudest, as in the case of the Mallard and European Teal. I counted up to twenty-one syllables which, gradually sinking in volume and pitch, gave the impression that the duck was going further away from the hearer as she was calling.

3. *The Prelude to Mating*.

This is like that of the Mallard. Nod-swimming is lacking.

D. SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of Display*.

The introduction is generally as solemn as that of the Mallard. They do not start off the display acts in the middle of swimming, as

is the case with Pintails and Garganeys, that swim after a female. They must first move together and shake. My four drakes paid less attention to the presence of the female than the European Teal does, but more than the Mallard and Mandarin. The slow, measured succession of the single acts resembles neither the hurried display of the European Teal nor the restless swimming around of the drakes of *D. spinicauda* in display. On the other hand, one is reminded of the European Teal by the circumstance that almost every individual display act is repeated frequently so that one appreciates that the movements are literally identical.



FIG. 38.—The grunt-whistle of the Chilian Teal drake. Notice the tuft on the back of the head and compare with Figs. 11*b*, 21.

2. *The Introductory Shaking.*

This corresponds to that of other species. I have never yet recorded mock-preening.

3. *The Grunt-whistle.*

This is similar to that of most other drakes ; a grunting tone is

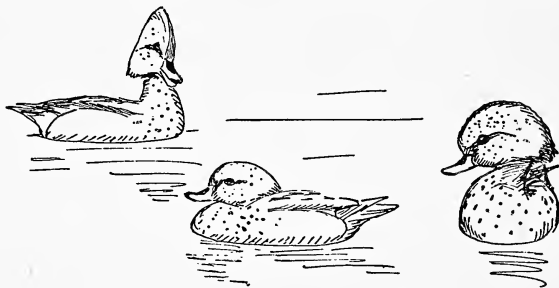


FIG. 39.—The burping with the turning-of-the-head of the Chilian Teal drake. Notice the disk "coiffure" and compare with Figs. 13, 22, 24. Here without preceding head-up-tail-up.

lacking. The tuft at the back of the head is raised when the head is bent down (Fig. 38).

4. *Burping.*

Since the head-up-tail-up is lacking, burping occurs as an absolutely independent act, not linked with any other. It reminds one of the burping of the Mallard, Pintail, and European Teal, which is linked to the head-up-tail-up inasmuch as it is always accompanied by the turning of the head to the female. During this head turning (the

head plumage is a surprisingly high and narrow disk) the tuft on the back of the head points straight out like a thorn. The disk and tuft make a very striking picture and there can be hardly a doubt that the function of the lengthened feathers, which almost form a hood, lies in the optical effect of this movement (Fig. 39). A structural peculiarity lies in the fact that the feathers of the temples and sides of the head are lengthened much more than those of the top of the head. The result is a "disk coiffure", a flat lens form with sharp edges up in the middle line. This is in contrast to the "coiffure" of the Mallard, European



FIG. 40.—The bridling of the Chilian Teal drake. Compare the extremely great mimic-exaggeration of the movement with Figs. 17 and 31.

Teal, Carolina, and Mandarin drakes, in which the upper side of the head is set off by a sharp, clear edge against the sides. In burping, the whistle is almost always two-syllabled, like that of the European Teal "kedick".

5. *Bridling*.

This is probably the most striking and most used display of *N. flavirostre*. In swing and proportions it exceeds the corresponding actions of all other surface-feeding drakes. Not only does the head go along the back almost to the root of the tail, but it also glides downward from the middle of the back (Fig. 40).

6. *The Combat of the Drakes and the Post-coital Play*.

These are unknown to me, as well as any further display acts of the male.

XVI. THE GADWALL

Chaulelasmus streperus (L.)

A. GENERAL.

Closely related though the Gadwall is to the Mallard in many respects, it represents a deviation in a direction which leads away from the main group of surface-feeding ducks, and moves it near the Wigeons. These are a group by themselves, far removed from all other surface-feeding ducks anatomically, in manner of life and movements, and in colouring and plumage of ducklings. Besides that, it is well known that when Wigeons mate with *Anas* sterile hybrids are produced. When the Gadwall mates with either kind, hybrids are produced which have good powers of reproduction. The Gadwall stands between *Anas* and the Wigeons. On the other hand, there are affinities with the Teal, for the Falcated Teal (*Anas falcata*) is, as indicated by markings on its feathers, a peculiar link between *Chaulelasmus* and *Nettion*.

B. THE NON-SEXUAL REACTIONS AND NOTES.

The female and the ducklings have all the calls and actions of the Mallard. In addition to this they perform a very distinctive action, which is fully developed only in the Mallard drake (hardly suggested in the Mallard female and lacking in the ducklings)—the chin-lifting. During excitement, such as when one drives them into a corner, or when they press around their keeper asking for food, or when they find each other after separation, even little ducklings perform this action and utter a two-syllabled call in the rhythm that we find in the "raebraeb" palavers of the Mallards. When performed by a brood of ducklings the ceremony is more like a triumph-cry than is observed in the case of Mallards. When the mother joins in the ceremony, as she undoubtedly normally does, the analogy is even clearer than with my motherless ducklings. The corresponding action of Wigeons has quite clearly taken over the function of a triumph cry. The two-syllabled conversation call is lacking in the drake. However, he has a softly breathed call-note which certainly corresponds to the "raeae" of the Mallard drake.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting*.

The inciting of the duck is very peculiar. The real inciting movement over the shoulder alternates regularly with the movement of chin-lifting. The drake reacts immediately to inciting by lifting his chin, which movement I shall describe in more detail later. The cadence of the sound is that proper to inciting in surface-feeding ducks, but at the same time one can hear in it the rhythm of the Mallard's "raebraeb" palaver. To follow Heinroth's example in making a sentence that suits the rhythm, we shall say in good south German dialect "Sö gehn's weg do Sö" (You go on away there, you). This sentence gives the meaning of the ceremony, too, which generally takes place when two pairs try to annoy each other and drive each other away, in the manner of Wigeons. As in the Carolina and Mandarin ducks, as well as in *Amazonetta* and *Casarcinæ*, the inciting female at times touches the breast of the drake with her bill.

2. *The Decrescendo Call*.

This is decidedly rare in the Gadwall. It sounds higher and has fewer syllables than that of the Mallard.

3. *The Prelude to Mating*.

I have never seen this in the two pairs of very shy Gadwalls I have had.

D. SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of Display.*

The Gadwall and the Wigeons differ fundamentally from all the other surface-feeding drakes (with the possible exception of the Shoveler) in that a definite social play in the sense of the gathering of several drakes is lacking. Similarly to the Carolina one notices display actions and calls, mostly when two pairs are aggravating each other or when two or more drakes are paying attention to one female. Any positive reactions the drakes have upon each other, such as observed among surface-feeding ducks and in the Mandarin, are lacking in the Gadwall. Although social play of drakes is lacking, the Gadwall performs actions which certainly correspond to those of social display of other surface-feeding ducks. This is not so surprising, as instinctive movements often prove to be more conservative in evolution than do the concomitant orientation reactions. Even the introduction to display is like that of other drakes. The Gadwall drake, swimming after his duck, uses shaking and mock-preening as self-stimulation in a way very similar to that of other surface-feeding drakes.

2. *The Introductory Shaking.*

This precedes the display proper, as with other Anatinae.

3. *Mock Preening and Drinking.*

These play a special role in the Gadwall. Both movements have merged into a firmly linked ceremony. In the Mallard the drinking and mock-preening follow no set order, with the result that one could hardly prove the function of these actions to a person who was rather unwilling to be convinced. In the Gadwall the ceremony is very clear. Drinking always follows immediately after mock-preening. The evolutionary development of the introductory movements is all the more interesting since we know a case in which the component acts occur in reverse order, namely in the performance of the Mandarin, wherein drinking always precedes mock-preening. As in the Mandarin, so in the Gadwall, there has taken place, parallel to the higher differentiation of the mock-preening, a higher differentiation of the plumage. This becomes apparent during mock-preening. The most strikingly coloured feathers on the specula and the large wing coverts are exactly at the spot which is lifted and moved by the preening bill.

4. *Burping.*

This is highly differentiated. In a way it is more like that of the Pintail than that of the Mallard. Its occurrence is quite isolated, even without the head-up-tail-up, and it is one of the most frequent actions of the Gadwall's display. The call, which obviously requires the lifting

of the head and the stretching of the windpipe in order to bring it forth, is a very strange nasal-pitched tone midway between "oe" and "ee". It is very questionable whether the peculiar "o"-sounds of the Gadwall can be compared to the Mallard's "raeb". In volume the Gadwall's burp reminds one much more of the long drawn out "r ae ae b" of the Mallard, which represents the latter's call- and warning-notes, than of the corresponding call of the Pintail, which is often accompanied by a whistle. I have never heard a whistle in the Gadwall's burp. But the Gadwall utters, independently from the grunting "o", a softly breathed call-note, which to me certainly seems homologous to that of the Mallard.

5. *The Grunt-whistle.*

Even the Gadwall uses this action. With him it is peculiarly incomplete, broken off short. The body is not lifted up nearly as much as with other surface-feeding ducks. The normal position follows very quickly and the bent-down position of the head is held extremely briefly. The head is thrust up again immediately, but it is held close to the neck. While the head is being bent downward a piercing grunt tone is heard. This is followed by a fine, sharp whistle, occurring as a smooth transition. The grunt tone sounds like "oeh"; so the whole thing sounds like "oe oe oe i i i". The order of grunt and whistle is exactly reverse to that of the Mallard.

6. *Head-up-tail-up.*

In the Gadwall drake this is strangely enough linked with the down-up act, which with him does not occur as an isolated act of display. The rump is not lifted nearly as high as with the Mallard. On the other hand, the following burp is very pronounced and it is linked with a pronounced turning of the head towards the duck. The movement of the rump, in spite of its small degree, is very effective, because of the ruffling of the very long, thick, deep black upper and lower tail coverts (Fig. 41). The head-up-tail-up is followed occasionally by a slight swimming forward, which has no hint of head-nodding, but terminates in an extreme turning back of the head, in the same way as the the Mallard's nod-swimming ends. Much more frequently, indeed, almost always, the down-up act follows the head-up-tail-up, being linked with it and the burp.

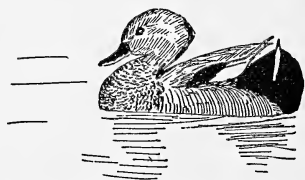


FIG. 41.—The head-up-tail-up of the Gadwall drake, *Chaulelasmus streperus* (L). Notice the parts of the plumage which are especially prominent, and compare with those in Figs. 12, 22, 25, and 34.

7. *The Down-Up Movement.*

This occurs only in the above-mentioned connection. This is a poor name for this action of the Gadwall's, as the downward movement is very slight while, on the other hand, the following lifting of the chin is very pronounced.

8. *Chin-lifting.*

As already mentioned in discussing the actions of the female, the chin-lifting plays a very important part with the Gadwall because of its significance as a ceremony, analogous to the triumph-cry of *Anserinae* and *Casarcinae*. The rhythm suggested in the Mallard's "raeb raeb" palaver; long-short, long-short, long, is found in both sexes of the

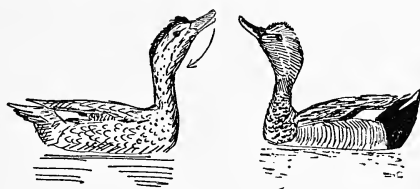


FIG. 42.—The mutual chin-lifting of the Gadwall pair. The arrow indicates the direction of the sideward inciting movement which is added between every two liftings of the chin. Compare Figs. 3, 44, and 45.

Gadwall, both in the female's inciting and the drake's action which I am about to describe. In response to the duck's inciting, the drake lifts his chin well past the horizontal, without having lowered it first, while his body at the base of the neck sinks very considerably into the water. As a rule this chin-raising is repeated three times, corresponding to the rhythm I have described. When he raises the chin for the first and last time, he utters a grunt, but at the middle one, he utters a shrill whistle. Thus, the whole phrase sounds like this "oeh, oe—ee—oe, oeh". Simultaneously with this action of the male, the female performs her alternating inciting and chin-raising (Fig. 42). Generally this inciting coincides with the drake's whistle, thus it is given in unison, with the phonetic phrase we have given for the male. The amazingly fixed correlation of the sounds of both mates reminds one very much of the corresponding "triumph-ceremonies" in Wigeons which also are accompanied by chin-raising. The employment of this action when a pair are aggravating each other, the lack of seriousness in a combat, the short effect of "victory", are also exactly the same as in the Wigeons. At moments of small intensity, the drake's utterance shortens to two sounds, a whistle with an accompanying grunt. One hears this very often.

9. *The Turning of the Back of the Head.*

This also plays a great role in the Gadwall's wooing. In this the head feathers take a very extreme and striking position. The plumage of the forehead is ruffled until it is broad and round and therefore looks dark. The feathers on the top of the head form a high ridge along the middle line. At the back of the head the feathers are ruffled to the highest degree possible, forming a broad area which appears almost black. When the head is drawn in, at the position taken at

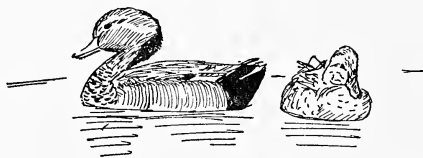


FIG. 43.—The turning back of the head of the Gadwall drake. The dark area on the back of the head is formed by the position, not by the dark colour of the feathers. Compare Figs. 15, 23, 26.

the beginning of display, this area lies on the back. But before the movement we are speaking of, the head is lifted just high enough so that the area can be seen, and then the head is turned to the female. The dark cushion at the back of the Gadwall's head is in such contrast to the colour of the rest of the head that a person knowing the drake only in this position of the feathers would say that the back of its head was dark, like that of the Pintail.

10. *The Combat of the Drakes.*

This is just like that of the Mallards. I have never seen the mating and the post-coital play.

(To be continued)

* * *

BRITISH AVICULTURISTS' CLUB

The thirty-fourth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 10th September, 1952, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss K. Bonner, Mrs. V. M. Bourne, G. T. Clark, Mrs. G. T. Clark, T. Crewes, A. H. D'Aeth, W. T. Dring, A. Ezra (Patron), J. F. M. Floyd, Miss

S. A. Fothergill, Miss D. Gask, T. Goodwin, H. J. Harman, Major E. F. Housden, F. T. Jones, Miss E. M. Knobel (Club Hostess), Miss M. H. Knobel-Harman, Dr. F. B. Lake, P. H. Maxwell, H. Murray, K. A. Norris, A. A. Prestwich, R. C. J. Sawyer, J. L. Sears, K. J. Smith, R. Stone, E. N. T. Vane, H. Waller, C. H. Wastell, R. C. Witting, Mrs. R. C. Witting.

Guests : W. A. Alden, Dr. K. Aylwin-Gibson, J. Bailey, P. B. Bloomer, G. S. Cansdale, Mrs. G. S. Cansdale, Miss J. Crone, Mrs. W. T. Dring, W. J. C. Frost, Mrs. W. Gask, C. Goodwin, Mrs. C. Goodwin, W. Higham, M. Lake, F. W. Luck, Mrs. R. Maurice, Mrs. D. Seth-Smith, R. A. Taylor, Mrs. R. A. Taylor, Mrs. H. Waller, A. J. Woods.

Members of the Club, 33 ; guests, 21 ; total, 54.

After the Loyal Toast the Chairman proposed the health of our Patron, Alfred Ezra, who celebrated his eightieth birthday on 6th September ; the response was, of course, vociferous.

Introducing Walter Higham, the Chairman described him as the foremost colour-film bird photographer in Europe if not in the world. After seeing his " Broadland Birds " one could be left with little doubt that Walter Higham was more than worthy of this description.

The Hickling and Horsey bird sanctuaries are world-famous, and the film deals chiefly with the wild-birds and wild-life frequenting this part of the Norfolk Broads. Rare British breeding birds such as the Bittern, Marsh-Harrier, Montagu's Harrier, and Bearded Tit, are pictured at the nest. Many more commonly known birds, the Great Crested Grebe, House-Martin, Water-Rail, Coot, Moorhen, Sedge-Warbler, Reed-Warbler, and Swans are to be seen. Birds frequently there on migration, including the Avocet, Stilt, Spoonbill, and Wood-Sandpiper are also in the film.

Some of the more interesting features are the pictures of a Water-Rail carrying a chick, a Bittern eating its dead chick, Martins collecting mud and nest-building, and slow motion pictures of Swans taking off the water, using their feet in the process. A part that gave great pleasure to many members showed Roland Green at work in his garden.

At the conclusion the spontaneous and sustained applause proved that Walter Higham's latest film is indeed a triumph of colour photography.

The next meeting of the Club is on **12th November, 1952.**

ARTHUR A. PRESTWICH,

Hon. Secretary.

NEWS AND VIEWS

Some twenty-five members and guests accepted the invitation of the Council of the North of England Zoological Society to lunch at the Zoological Gardens, Chester, on 6th September, 1952.

The Director-Secretary, G. S. Mottershead, and his staff, were untiring in their efforts to make the visitors welcome, and the warmest thanks of all are accorded to them for a very enjoyable and memorable visit.

* * *

Four Black Swans have been presented to Mr. Winston Churchill by Mr. Ross McLarty, Premier of Western Australia. They are at present undergoing 28 days' quarantine at the London Zoo.

* * *

Miss Phyllis Barclay-Smith represented the British Co-ordinating Committee for Nature Preservation and the Forest and Bird Society of New Zealand, and also acted as Observer for Her Majesty's Government at the 3rd General Assembly and Technical Meeting of the International Union for the Protection of Nature held at Caracas, Venezuela, 3rd-9th September, 1952.

* * *

Fred Shaw Mayer writes from Sydney that he was very disappointed not to be able to accompany his New Guinea collection to England. He is shortly resuming his collecting activities on behalf of Sir Edward Hallstrom.

* * *

Mrs. Muriel Bennett has presented the late J. C. Bennett's books to the Society "In appreciation of the happy times he had with the Society and the interest he always took in avicultural matters".

* * *

Members visiting Ilfracombe should make a point of seeing the Zoo Park. Great strides have been made during the past two years, and C. H. Trevisick has got together a representative collection, including sixty Macaws, Cockatoos, Parrots, etc.

* * *

W. J. C. Frost recently returned from his forty-ninth collecting trip with twenty-six Birds of Paradise, comprising Greater, Red, Twelve-wired, Wilson's, and King; five Hornbills, Great Indian, Rhinoceros, Wrinkled-billed, and Plicated. Also included were Blue Gallinules and Nias Island Mynahs; and single specimens of Two-wattled Cassoway, Pesquet's Parrot, Black Lory, Malaccan Parrakeet, Pink-headed Fruit Pigeon, and Macklot's Pitta.

* * *

W. G. Baird, Palmerston North, N.Z. says : " No doubt you know that the Parrot ban has now been partly lifted in New Zealand. At present the lifting only applies to birds from Australia, but that alone will be a big help, except prices have sky-rocketed in Australia, but apart from that we now have the opportunity of stocking our aviaries which is the main thing. I am hoping to get a few across in the near future, and hope they will survive our present cold weather. If one waits till later it means missing a breeding season, so is worth the risk."

* * *

E. J. Boosey reports : " We have had quite a fair breeding season, and the high spot has certainly been the old pair of Pileated Parakeets who, having already reared five excellent young ones, surprised me by going to nest again. Their second brood consists of three which should be out any day now, and if they do fledge successfully the pair will have reared seventeen young ones in three seasons ! Turquoisines, on the other hand, have done badly."

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K. A. Norris writes : " I have two young Leadbeaters from the eggs which were incubated for ten days by a racing Pigeon, otherwise breeding results have been most disappointing.

" Young Gambel's Sparrows appeared well on the wing before I realized that the old birds were even nesting. I believe they now have another nest. Towhees and Juncos are sitting, but the Towhees have already added one family to their meat ration, and will probably do the same again. A pair of Evening Grosbeaks are building, and a Mountain Blue Robin appears to be investigating nest-boxes. The Lineolated Parrakeets again had infertile eggs, in a cage. I tried one pair in an outdoor aviary, but had to take them in again yesterday, as the hen very nearly curled up. Blue-winged Parrotlets seem happy enough outside, but show no signs of nesting."

* * *

James Rooney writes from Yakima, Washington : " It may interest you to know that the McNary Dam on the Columbia River (100 miles south-east of here) is flooding out the islands upon which large numbers of Great Basin Canada Geese have nested. The geese are forced to seek new nesting areas, and there are not too many unless they go up the smaller rivers. The proposed dam at the Dalles will also have an adverse effect. I don't like to get such unfavourable reports on the largest and finest of our geese. Munro tells me that a proposed power dam in B.C. will have an adverse effect on Trumpeter Swans, too, since it will force them to winter farther south where much shooting has been done. He says that, if this is the case, lead poisoning will take a heavy toll."

Dr. Alan Lendon has kindly sent the following information. The Bronze Medal of the Avicultural Society of South Australia has been awarded during the past twelve months for breeding :

Red-whiskered Bulbul (*Otocompsa emeria*), R. W. B. Afford.

White-bellied Finch (*Uroloncha leucogaster*), A. Phillips.

Comoro Weaver (*Foudia eminentissima*), H. J. Hutchinson.

The Silver Medal for the outstanding breeding achievement of the period was awarded to R. W. B. Afford for the Bulbul.

* * *

Some of the 1952 breeding results of our two foremost parrakeet breeders are : Mrs. G. T. Clark, 2 Leadbeater's Cockatoo, 9 Cockatiel, 2 Queen of Bavaria's Conure, 6 Barraband's, 1 Rock Pebbler, 10 Queen Alexandra's, 2 Crimson-winged, 1 Pennant's, 3 Golden-mantled Rosella, 6 Stanley, 3 Barnard's, 5 Many-coloured, 9 Bourke, 4 lutino and 3 split-lutino Ring-necked, 8 Barnard's × (Golden-mantled × Mealy Rosella), 4 Queen Alexandra's × Barraband's, and 8 Turquoise × Elegant : E. N. T. Vane, 2 Leadbeater's Cockatoo, 7 Cockatiel, 3 Noble Macaw, 9 Queen Alexandra's, 3 Pennant's, 2 Mealy Rosella, 2 Stanley, 4 Red-rumped, 4 Elegant Grass, 20 Bourke, 2 Peach-faced, and 3 Masked Lovebirds, and 2 lutino and 6 split-lutino Ring-necked.

* * *

We hear that—P. H. Maxwell's recently acquired Pesquet's Parrot is doing very well—Captain R. W. Veitch has, as usual, bred Alexandrine Parrakeets, the third generation—H. Murray has reared a nest of four Guiana Parrotlets, three cocks and one hen—H. J. Indge has had two young Red-sided Eclectus Parrots hatched—N. Nicholson continues to breed Red-headed Parrot Finches—young bred this season being the twentieth generation—The Duke of Bedford has reared four more blue Ring-necked Parrakeets—T. R. Holmes Watkins has bred Splendids, Pennants, Queen Alexandra's, and two Kings—Captain T. T. Barnard reports five (Rosella × Stanley) × Red Rosella, one (Rosella × Stanley) × (Adelaide × Rosella), and three quintruples [(Brown's × Mealy) × Stanley] × (Pennant's × Rosella)—Captain A. A. Clarence has a young Red-vented Bulbul strong on the wing. Last year the parents killed their three young when fully grown—this in spite of their being in a 40 ft. aviary—Dudley Zoo has bred two Virginian Eagle-Owls—Mrs. Grace Wheatley has reared five Painted Quail—F. H. Rudkin, Sr., reports that his Nyasa Lovebirds have a yellow young one among some green.

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If those members who have not yet paid their subscriptions appreciate in any degree the services of their Secretary-Treasurer and Assistant Secretary, they will repair their omission straight away, and so save those officers work and the Society expenditure which should not be necessary.

A. A. P.

NEWS FROM AMERICA

General Curator Lee S. Crandall retired from active administration of the mammal and bird collections of the New York Zoological Park on 31st July, 1952. He will, however, continue to maintain an office at the Park, and will be engaged in the preparation of books on the care, feeding, maintenance, and exhibition of wild animals in captivity, based on his experience of forty-four years with the collections at the Bronx Zoo.

Mr. Lee Crandall has been an active "zoo man" since 1908, when he became an assistant in the department of birds at the Bronx Zoo. He was appointed curator of birds in 1920, and general curator in 1943. Mr. Crandall is one of the best-known of American zoo officials, and has an international reputation for the excellence of the bird collection he formed at the Bronx Zoo. In 1928-29, he collected Birds of Paradise in New Guinea, returning with what was at that time the greatest collection of the "most beautiful birds in the world" ever brought out. Under his curatorship the Bronx Zoo's bird collection has become the largest and best in any zoo in the world, and its mammal collection has acquired many rarities not previously shown anywhere.

Because of his knowledge of zoo practices all over the world, he has been commissioned by the Zoological Society to write a series of books on the techniques of zoo-keeping, a subject of increasing importance as exhibition methods change and zoo breeding of rare wild animals becomes more and more necessary. With the title of General Curator Emeritus he will continue to work at the Zoological Park.

* * *

Among birds recently received at the Zoological Gardens of San Diego are a Galapagos Penguin (*Spheniscus mendiculus*), a Monkey-eating Eagle (*Pithecophaga jeffreyi*), a Nocturnal Curassow (*Nothocrax urumutum*), a pair of the nearly extinct Masked Bob-white (*Colinus virginianus ridgwayi*), a pair of Cameroon Straight-crested Guineafowl (*Guttera plumifera plumifera*), a pair of Bronze-winged Parrots (*Pionus chalcopterus*), a pair of Red-billed Hornbills (*Tockus erythrorhynchus*), a Philippine Rufous Hornbill (*Buceros hydrocorax*), a pair of Philippine Coletos (*Sarcops calvus*), a Taczanowski's Yellow-tailed Oriole (*Icterus mesomelas taczanowskii*), a Golden-crowned Oriole (*Icterus chryscephalus*), and Darwin's and Red-eared Tanagers (*Thraupis bonariensis darwini* and *Poecilothraupis igniventris erythrotus*).

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LONDON ZOO NOTES

By JOHN YEALLAND

A King Penguin hatched on 7th August continues to thrive. The father appears to have done all the work of incubation and rearing, and the comparatively cool weather of the past six weeks has, no doubt, been very much in the chick's favour.

Other birds bred in the menagerie include eight blue Masked Lovebirds; a Queen Alexandra's Parrakeet; seventeen Carolina Ducks; a Red-crested Pochard; ten Black Kalij; two Temminck's Tragopans; two Common and one Black-winged Peafowl; an African Sacred Ibis, and a Silver Gull. The Red Jungle Fowl kept in open pens always breed well there and do not attempt to escape.

Mr. Frost has presented an interesting Myna new to the collection, the Nias Island Myna (*Eulabes religiosa robusta*), a large bird with particularly long occipital wattles.

The Ruffs in the Waders' Aviary which made such an attractive exhibit with their displaying earlier in the year have been augmented by four which were presented, together with a Greenshank; two Redshanks; a Black-tailed Godwit, and two Little Ringed Plovers (*Charadrius dubius curonicus*), by Monsieur Léon Lippens.

A drake Eider, hand-reared by Colonel Lumsden and presented by him, makes a mate for the duck which laid two eggs during the spring.

A delightful gift of birds from Mr. E. H. Hawke, of Lourenco Marques, has just arrived. They are two East African Colies (*Colius striatus affinis*); two White-bellied Sun-birds (*Cinnyris leucogaster*); two Mariqua Sun-birds (*C. bifasciatus mariquensis*); one Scarlet-breasted Sun-bird (*Chalcomitra gutturalis*), and one Zambesi Amethyst Sun-bird (*C. amethystina kirki*).

Other presentations include a Guinea Touraco (*Touraco persa*) and two White-eared Bulbuls (*Molpastes leucogenys leucotis*).

A Black Lory (*Chalcopsitta atra*), a pair of Black-headed Conures (*Nandayus nenday*), and a Gosling's Rock Bunting (*Fringillaria tahapisi goslingi*) have been received in exchange: two Asiatic White Cranes (*Megalornis leucogeranus*), and two Keas (*Nestor notabilis*) have been purchased, and a Macklot's Pitta (*Pitta erythrogaster*) has been deposited.

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REVIEWS

THE BIRDS OF MALAY, SINGAPORE, AND PENANG. By A. G. GLENISTER. With 78 birds in colour and monochrome by Mrs. GLENISTER, and 74 text illustrations and photographs by the author. Oxford University Press, 1951. Price 35s.

This is a popular account of the birds found in the vicinity of Singapore, Penang, the Cameron and Fraser Highlands, together with descriptions of other species in less accessible parts of the Malay Peninsula.

In the introduction, the author, a keen amateur ornithologist, makes some simple remarks on the classification and naming of birds. The main body of the book is divided into two parts, the first entitled "Malayan Birds in the Field" with chapters on the everyday birds, some aids to identification, and "Birds and Bird families in Malaya". The second part consists of a list of birds inhabiting the Malay Peninsula and Peninsula Thailand, with descriptions and rather brief notes on the habits of the common species. There are a number of rather mediocre line drawings by the author, and sixteen plates in black and white and colour by Mrs. Glenister, which should be an aid in identifying species.

Singapore, before the war, was the great centre of the trade in live birds in the East, and in the shops and market it was possible to buy birds from India, China, and the islands of the East Indies. The bird life of the peninsula is very rich, and is the home of many beautiful and interesting species. It is in the jungles of Malaya that the brilliant Fire-back Pheasants are found, and there, too, the beautiful Peacock Pheasants, while in the heavy jungle the Ocellated or Crested Argus and Argus Pheasant are more often heard than seen. The former bird, according to Delacour, is unique in that it has the longest rectrices of any bird, in fact these feathers are the longest feathers in the bird world. Then, too, there are a number of brilliant Pittas, Kingfishers, Barbets, and Broadbills. Unlike the Indian members of the Crow family, however, all the Malayan species are of a sombre hue, with the exception of the Green Magpie or Hunting Crow, which the author calls the Blue-Green Magpie ! The great family of Babblers, over forty in number, are for the most part rather dull coloured, but there are exceptions ; the popular Silver-eared Mesia and the Blue-winged Siva, well known to aviculturists. Among the Leaf-Birds and Bulbuls there are many species frequently kept in this country, the former mostly of a green colour, though the Fairy Bluebird is of a shining blue and black. Among the Thrushes the Magpie-Robin and Shama are represented by local races, and the last-named is common in the jungles and has the reputation of being the finest songster in the peninsula. The Sunbirds and Flower-peckers include some of the

most brilliantly-coloured birds in Malaya, such as the Scarlet Sunbird, the Crimson Sunbird, and the Scarlet-backed Flower-pecker. For long Singapore has been the source where many Munias were obtained, and eight, including the Weaver-Bird, are indigenous, though there are others which have been introduced, including the Java Sparrow, whose original home is a matter of doubt. These are a few of some of the delightful birds which Mr. Glenister has described in his book.

N. K.

RECORDS OF PARROTS BRED IN CAPTIVITY. Part V :
LOVEBIRDS AND BROADTAILS. By ARTHUR A. PRESTWICH. London,
1952. Price 7s. 6d.

This volume of the excellent series prepared by Mr. Prestwich is the largest, as it contains the breeding records of the Lovebirds of the genus *Agapornis*, one of the most popular kept in captivity. The large number of breeding successes and crosses testify to the fact that Lovebirds and Broadtails are most satisfactory birds for the aviculturist. The colour varieties achieved with Lovebirds are also fully recorded. Volume V forms a valuable addition to those already published.

P. B-S.

* * *

CORRESPONDENCE

PARRAKEET EYE DISEASE

Mr. Vane's amusing and instructive "Psittacorial" in the July-August AVICULTURAL MAGAZINE was particularly interesting for his account of the cure of contagious eye disease of Australian Parrakeets with sulphonamides. Before the war this condition was almost 100 per cent lethal. Cures have been obtained in the larger species with instillations of mercury perchloride (John Yealland—personal communication), but so far as I know, none of the smaller species have recovered before the Manycoloured successfully treated by Mr. David West, Sen., with yellow oxide of mercury and aureomycin (AVICULTURAL MAGAZINE, March-April, 1951), and the Splendid cured by Mr. T. R. Holmes Watkins with sulphanilamide (AVICULTURAL MAGAZINE, March-April, 1952).

I recently had the opportunity of treating a hen Barraband, belonging to the Duke of Bedford, for this disease, and after failing with the whole range of available antibiotics, including the above remedies, finally cured her with ophthalmic chloromycetin.

I do not know much about eye infections of birds—I doubt if very much is known—but some consideration of analogous conditions in man may help to reconcile the reports.

In the first place, shortage of Vitamin A in any vertebrate predisposes to eye infection, and indeed can by itself produce an intractable and fatal eye disease (xerophthalmia). Such a shortage may well exist in the diets of newly-caught birds or birds on long voyages.

Conjunctival infection may be due to bacteria susceptible to sulphonamides, or bacteria not susceptible to sulphonamides, but sensitive to penicillin, or bacteria not susceptible to either, but sensitive to the new antibiotic drugs Aureomycin, Chloromycetin and Terramycin. There are also virus infections which do not respond to sulphonamides or penicillin, but some of which respond to the "mycins". Finally there are a few infections which resist all the antibiotics, but may yield slowly to the old antiseptics such as perchloride of mercury.

I cannot follow Mr. Vane in his suggestion that the complaint is due to injudicious handling, or the inclusion of grit into the eye. The condition as I have seen it is not in the least like a foreign body reaction and clinically appears to be a specific disease.

I think in view of the above data, the reports of Messrs. Vane, West, and Watkins, and my own experiments with the Barraband, it would be reasonable to treat a further case with (1) large quantities of Vitamin A—in greenfood and in cod liver oil seed, or better, one of the water soluble vitamin preparations now on the market ; (2) sulphonamides—local instillation of 5 per cent sulphonilamide, plus, in a severe case, perhaps sulphamezathine in the drinking water ; (3) if these failed, local instillation of ophthalmic chloromycetin (the only “ mycin ” at present freely available in Great Britain—Aureomycin might be used in America) would have good hope of success.

I would like to try to isolate the organism or organisms responsible, and put the treatment on a truly scientific basis. To this end I should be most grateful if any member who has a case in his collection would permit me to visit him and take swabs for bacteriological investigation. To be of any value this would need to be done before treatment of any kind was applied. The effort might well be fruitless, but if successful extremely useful information might result. Would anyone interested, who has a case and resides a reasonable car ride from London, please write to me or telephone Kingston 2460 ?

F. B. LAKE, M.R.C.S., L.R.C.P.

THE WHITE HOUSE,
5 PORTSMOUTH ROAD,
KINGSTON-ON-THAMES.

TREATMENT OF COCCIDIOSIS AND EYE DISEASES

Although he may be quite right, I found Mr. Vane's remarks on the worse-than-uselessness of sulphamezathine as a preventative of coccidiosis rather depressing, as I had been hopefully using it for that purpose ! As a remedy for Polyteline Parrakeets actually affected I find it of no avail, but I have cured a Bluebonnet and a Lorikeet with it, and about 50 per cent of the Budgerigars that got ill.

It is easy to distinguish from enteritis as the droppings remain dark and rather normal-looking, and an affected bird rarely, if ever, puts its head “ under its wing ”. In the earliest stages a Budgerigar may show some of the signs one associates with health, but if it be made to fly its flight will lack normal speed and briskness.

Another characteristic symptom is the caking of the droppings round the vent, after the first day or two. Coccidiosis, here, is worse in July, and as bad in hot, dry weather as wet ; with regard to eye disease, Dr. Lake cured a Barraband which had proved resistant to all the newest and latest “ cures ”, by a 5 per cent solution of ophthalmic chloromycetin, a drop a minute being put in the bird's eyes for twenty minutes on the first day and for five minutes each day during the next two weeks.

CROWHOLT,
WOBURN,
BLETCHLEY, BUCKS.

BEDFORD.

HOMING BIRDS

With reference to Mr. Walmsley's article, Budgerigars and other psittacine birds stray for two entirely different reasons. Some go because they *want* to seek “ fields and pastures new ” ; others, which have been confined in aviaries all their lives, go because they are bewildered by the strangeness of freedom and the fear of flying *down*, and lose their way, though they may have mates and young at home they do not really wish to leave. Such birds, if they can be traced and recaptured at a distance, may stay perfectly well if they are released a second time, for quite a short period of freedom is enough to teach them to manage themselves in the air and come down from a height.

BEDFORD.

CROWHOLT,
WOBURN,
BLETCHLEY, BUCKS.

COLLARED TURTLE-DOVE IN LINCOLNSHIRE

There is at the present time a dove at Middle Manton, in north Lincolnshire, which appears to be a Collared Turtle-dove (*Streptopelia decaocto*). This bird has been in that locality since the first or second week of May, 1952, but was not examined by an ornithologist until the end of July. It is perhaps abnormally pale on the breast and head, but it is almost certainly the species claimed, and it is not the common domestic Collared Dove (*S. risoria*).

For the moment we are anxious to discover what chances there are of its being an escape, for I understand that several species of *Streptopelia*, including *decaocto*, have been imported and offered for sale in at least four different years since the war, the last time being in 1951. As it is just possible that this is the first British record of a species we have been expecting on account of its recent rapid spread across Europe, it is obviously particularly important that we attempt to discover all that we can about this and related species in captivity.

Can you help me to find out who in recent years has possessed doves of any of the *decaocto*-like species of *Streptopelia* (with the exception of *risoria*) and if any have been lost? I will be particularly glad to hear from anyone in north Lincolnshire or south Yorkshire who has kept or sold any of these eastern Turtle-doves since the war, and I hope that they will be able to tell me whether or not individuals have escaped.

I. J. FERGUSON-LEES,
Assistant Editor, *British Birds*.

FORDLANDS,
CROWHURST, SUSSEX.
26th August, 1952.

HAND-REARED RED-LEGGED PARTRIDGES

I have a few tame hand-reared Red-legged Partridges (*Alectoris rufa*) surplus to my requirements.

I should be glad to give them to any aviculturist genuinely fond of, and interested in, these birds who could give them suitable accommodation in a large outdoor aviary. They need plenty of space and plenty of fresh greenfood, but are otherwise easy to cater for.

Would anyone desiring them please write, giving particulars?

DEREK GOODWIN.

"TOFTS," MONKS ROAD,
VIRGINIA WATER, SURREY.

CANDIDATES FOR ELECTION

- C. BATES, Norton Cottage, Peter Lane, Warley, Halifax, Yorks. Proposed by K. A. Norris.
- W. BIALLOSTERSKI, Kruidbergerweg 99, Santpoort, Holland. Proposed by G. de Goederen.
- W. BIRD, F.R.P.S., F.I.B.P., 46 Manchester Street, London, W. 1. Proposed by Miss E. M. Knobel.
- F. CURTO, North Side Conservatory-Aviary, West Park, Pittsburgh 12, Pennsylvania, U.S.A. Proposed by Miss K. Bonner.
- L. A. HADLOW, Barbary Farm, Norton, Faversham, Kent. Proposed by E. J. Boosey.
- SVEND T. HANSEN, 101 Amager Landevej, Kastrop, Amager, Denmark. Proposed by E. N. T. Vane.
- E. H. HAWKE, Box 796, Lourenco Marques, Portuguese East Africa. Proposed by J. Yealland.
- W. HEPWOOD, F.Z.S., "Dogberry," Long Lane, Tilehurst, Reading, Berks. Proposed by C. R. Freeman.
- B. J. HUDDART, M.B.O.U., Shirley House, Marsh Lane, Taplow, Bucks. Proposed by D. Goodwin.
- Dr. E. W. ISAKSON, 168 West 12th Street, Ogden, Utah, U.S.A. Proposed by Calvin D. Wilson.
- Miss M. SÉE, Avifauna, Alphen-aan-der-Rijn, Holland. Proposed by Miss K. Bonner.
- T. SMITH, 46 Millburn Street, Crook, Durham. Proposed by J. M. S. Lax.
- R. A. TAYLOR, F.Z.S., Blue Bird, Ferry Avenue, Chertsey Lane, Staines. Proposed by Miss E. M. Knobel.

NEW MEMBERS

The ten Candidates for Election, proposed in the July-August, 1952, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

CHANGES OF ADDRESS

- Mrs. M. BENNETT, F.Z.S., to 43 Motspur Park Road, New Malden, Surrey.
- J. J. GREGORY, to 66 Carew Road, Hamden, Conn., U.S.A.
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- Major E. F. HOUSDEN, to 126 Bessborough Road, Harrow.
- F. W. SHAW MAYER, to c/o Mr. R. W. Tebb, Lae, New Guinea, via Australia.
- KENNETH J. SMITH, to "Brendon", Harbour View Close, Parkstone, Dorset.
- N. B. SPURWAY, to "The Hermitage", Oadby, Leicestershire.
- T. G. TAYLOR, to 16 Derby Road, Caversham, Reading.
- DWIGHT WINTER, to 1160 Beechwood Boulevard, Pittsburgh 6, Pa., U.S.A.
- R. V. ZEORLIN, to 308, East Thomas, Seattle 2, Washington, U.S.A.

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A. H. ISENBURG	15	0
J. H. WALMSLEY	10	6

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

For Sale.—Two 1952 blue Indian Ring-necked Parrakeets.—Offers to THE DUKE OF BEDFORD, Crowholt, Woburn, Beds.

Outdoor-bred Golden-breasted Waxbill hens (2), Diamond Sparrow hen. Wanted, hen Dufresne's Waxbill.—DAVID TUCKWELL, Alves, Forbes, Morayshire.

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Wanted for members abroad—Several copies of *Parrots and Parrot-like Birds in Aviculture*, Tavistock. Please state condition and price.—HON. SECRETARY, 61 Chase Road, Oakwood, London, N. 14.

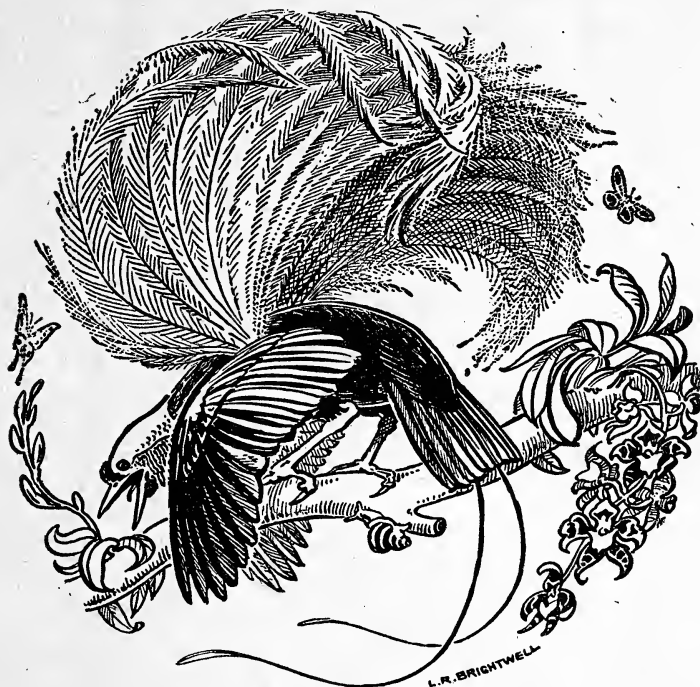
AVICULTURAL MAGAZINE. For sale, 1895–1946, all bound in original bindings, £40.—G. DE GOEDEREN, Orteliuskade 74, Amsterdam, Holland.

AUSTRALIAN PARROTS IN CAPTIVITY

A series of articles by Alan Lendon published in the Avicultural Magazine. A full account of 60 species of Australian Parrots is included in the book which deals where possible with the author's personal experiences in keeping them in captivity in South Australia.

There are one coloured and seven photographic plates. Stiff paper cover. Price 7s. 10d., post free. Published by the Avicultural Society, and obtainable from the Hon. Secretary, 61 Chase Road, Oakwood, London, N. 14.

AVICULTURAL MAGAZINE



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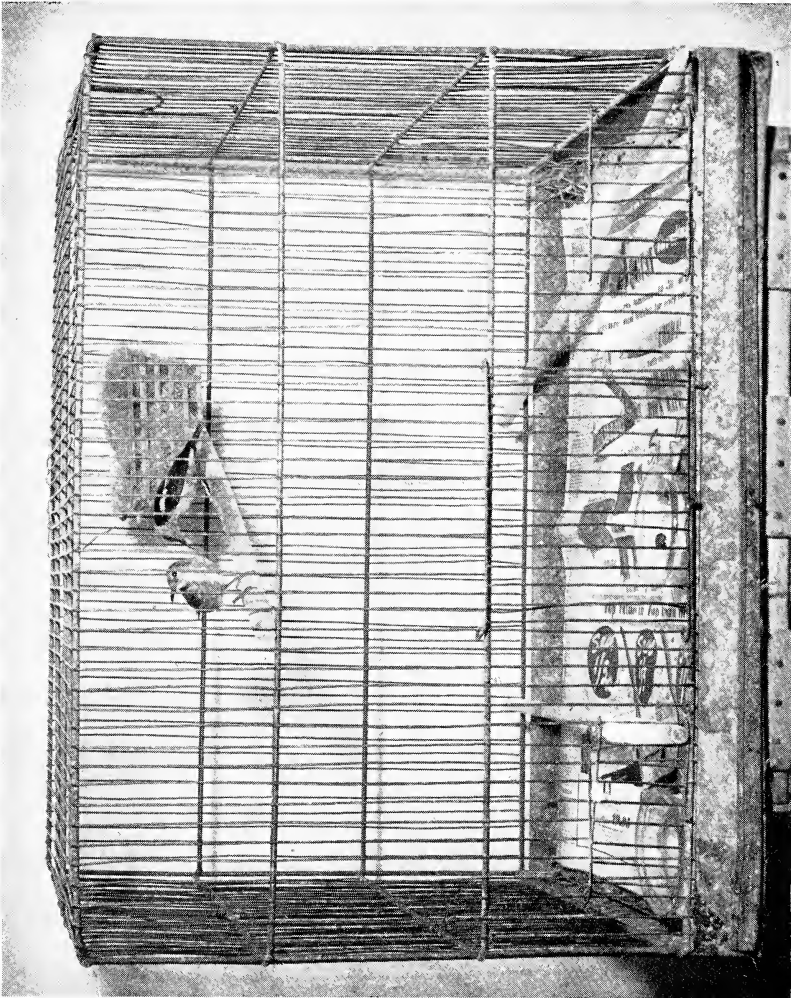
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[Zoological Society of San Diego

YELLOW-WINGED SUGAR-BIRDS

and nest 4 × 4 inches and 3 inches high in cage at San Diego Zoo.

AVICULTURAL MAGAZINE

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AND THE AVICULTURAL SOCIETY OF AMERICA

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NOVEMBER-DECEMBER, 1952

CAGE-BRED YELLOW-WINGED SUGAR-BIRDS

By KENTON C. LINT (San Diego Zoo, San Diego, California)

The Sugar-birds or Honey-creepers (*Certhidae*) are brilliantly coloured little birds of the American tropics. They resemble Humming Birds, with their long bills and the combination of bright greens, blues, and reds. Their food includes the nectar of flowers, as well as insects and soft fruits.

The Yellow-winged Sugar-bird (*Cyanerpes cyaneus cyaneus*) has nested on several occasions in captivity, but it is always news when they do so successfully and rear their young to maturity. Mr. William Krebs, in Pasadena, California, raised two nice babies in a large outdoor aviary in 1942. Several other breeding successes have been recorded in outdoor aviaries, many enjoying a semi-liberty captivity in which the birds were allowed freedom to secure the necessary insects and food to feed the babies.

In writing this article, we wish to record the breeding of Yellow-winged Sugar-birds in a small cage, 24 inches long and 14 inches wide, in an indoor bird room. The nest used by this breeding pair measured 4 inches by 4 inches, and was 3 inches high. Many different nesting materials were tried before the birds decided what to use. Dried grasses and the palm fibre from the African Hair Palm (*Chamaerops humilis*) were finally used to build a rather flimsy nest in this little plastic basket.

Yellow-winged Sugar-birds nest late in the year. The first egg was laid 17th June, 1952. The second egg was laid the following day. There has been some controversy concerning the colour of the Sugar-bird eggs. The eggs were white, blotched with rusty red irregular spots. The hen bird started sitting immediately after the second egg was laid. In such a small cage, personal observation of many details was easily made.

After twelve days of incubation, both eggs hatched on 30th June, but the babies were not offered food the first day, as sufficient food

had been assimilated through the egg yolk for this period. The second day, the hen left the nest for the first time to secure food for the babies. Bread and milk sop, soaked raisins, hard-boiled egg yolk, fresh grapes, ripe bananas, and orange supplemented by mealworms form our basic diet for all of our Sugar-birds. The smallest mealworms were the only food the mother bird would carry to her newly-hatched babies. Both babies were smoke-black in colour and ate well from the first time of feeding. The baby birds inserted their tiny bills inside the bill of the mother bird and she pumped the partially digested mealworms into the tiny bills and throats of the baby birds. Both youngsters grew rapidly, fed entirely on mealworms, for eleven days. When eleven days old, I noticed the babies perching on the edge of the nest. When sixteen days old, the babies drank water for the first time, and on the seventeenth day both youngsters ate a little banana by themselves.

The male bird took no part in the incubation or in the feeding of the young at any time. I was always worried lest the male bird might throw the babies out of the nest, so I decided to remove him. The cock bird was removed from the breeding cage when the babies were fourteen days old.

Both babies were still olive-green in colour when twenty-four days old. One was a little darker in colour, especially on the wings, which probably indicated a male bird.

When forty-five days old, I decided to separate the young birds from the mother. She was easily removed and returned to her mate, but she showed a great deal of anxiety at being separated from her babies.

The young birds are almost three months old to-day, and we are satisfied that Yellow-winged Sugar-birds may be raised in small cages, and mealworms are sufficient in the way of insect matter to rear them properly in captivity.

* * *

FURTHER NOTES ON THE RUBY TYRANT IN CAPTIVITY

By Dr. J. STEINBACHER (Frankfurt-am-Main, Germany)

Some considerable time has passed since I wrote in this magazine on *Pyrocephalus rubinus* in freedom and captivity. My first article closed with the establishment of the full moult in the summer of 1951, after I had had the birds for six months. During this the male lost his beautiful ruby red colour of the feathers and assumed a plain grey, spotted plumage. But already new feathers were showing in various parts of the body. This was in August. Four weeks later there was yet another phase. The new red feathers on the back of the head

and throat had disappeared and instead light red spots appeared on the breast and belly, which continuously increased in size, though they did not at first become deeper. Both birds again lost many small feathers and pecked and scratched themselves a great deal, as is usual in the course of the moult.

Their behaviour, however, was quite different to that during the summer moult in July–August. While then they were mostly sluggish and sat motionless, they now were very active, particularly the male. He often threatened the female with open beak and the typical beak snapping, the hard, quick snapping together of the beak, pecked her on the head and neck and drove her from her perch into a corner, at which she uttered complaining calls and crouched down flat. Frequently the male also flew playfully on to the back of the female, whereat she crouched on the perch calling and crying. Also towards humans the male proved to be the far more active of the two, quite in contrast to the behaviour of the pair in the first months of captivity which I have described (*AVICULTURAL MAGAZINE*, May–June, 1952). It was considerably more fearless, in human parlance it could be said that its self-consciousness now aroused had tremendously increased.

An explanation of these peculiar moulting conditions and the change in behaviour may be that the change of breeding dress was prematurely arrested as the natural food was lacking, so that the plain dress of the female was assumed, but the sex hormones quickly developed further after the moult. The new signs of development of breeding dress then further indicate a final transposition of the rhythm of the southern to that of the northern hemisphere, which the development of the gonads greatly precipitates. The occasional attempts of song and pairing of indigenous birds in autumn certainly show that this is not especially new.

In October I transferred the Ruby Tyrants from the cage to a spacious indoor aviary (125 × 75 × 125 cm.) with a simple wood frame and wire netting. Their behaviour after that did not strikingly alter. They hardly used the large space, kept to certain permanent perching places on their branches, seldom went on the floor where food was placed, and spent the night in separate places. Soon afterwards new deep red feathers again appeared on the top of the head and the light red parts on the breast extended further, but did not become deeper in tone. In the middle of January, after having survived the cold season, when the temperature was often only 6–8° C. in the bird room, without any harm or even any apparent detriment to the well-being of the birds, in addition to the new ruby red feathers in the region of the beak, deep red patches also appeared on the sides of the belly, particularly under the wings. The growth of these new feathers progressed rapidly without any distinguishable loss of feathers. Actually the red feathers pushed between the existing

grey ones and largely covered them. In the process the male became ever more aggressive, chased the female frequently, so that she flew into a corner of the cage, pecked her, and attempted many times to copulate. The female offered hardly any resistance to this and only cried out when the attack came unexpectedly. During February and March the red of the male became increasingly deeper, its extent ever larger and the behaviour more resembled that of the species in the free state. With sharp whip-like calls it flew round the aviary, crest bristling, beak threateningly half open, or more often sharply snapped shut. In April the male was practically as deep a red as in the March of the previous year when I received it from the Argentine. Its accentuated call dominated the room and now the female answered, but often with somewhat complaining calls, obviously inviting copulation. Both birds, particularly the female, searched for plant fibres and other nesting material. I thereupon placed an old Linnet's nest at a height of 1 m. in the aviary which the female then often improved and hopped around.

In May repeated invitations to feed by the male were observed ; it flew round with a mealworm in its beak, alighted on the back of the female and gave her the worm. After that the female, with wings placed high, and moved lightly up and down, and repeated calls "tjee—tjee—tjee" invited pairing. The male then came with sharp "kiss kiss" calls but trod seldom, generally only stood lightly on the back of the female and flew up again with snapping beak. The female sat in and improved the nest, and the male, now also occasionally showed some interest in it, so that I had great hopes for eggs and a brood. Then, in addition to the dried ants eggs, I gave a small portion of fresh ones, and these did not agree with my birds. The male died on 25th May of acute inflammation of the intestines ; all efforts to save it were in vain. Therefore my observations and experiments were interrupted. I hope to be able to continue with them with a new male and eventually also to achieve a brood which was my ambition. But already a series of interesting data have been obtained which were not entirely expected, above all with regard to the change in colour. There is no knowledge of a change of breeding dress in the male to a dull female plumage in the free state and, in my opinion, this is not only due to the physiological effect of captivity, but perhaps also to psychological reasons.

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SOME NOTES ON GRASS PARRAKEETS

By the DUKE OF BEDFORD (Woburn, Beds, England)

Breeding Grass Parrakeets is rather like trying to obtain justice in a Court of Law. With regard to the latter, if you have 100 per cent right on your side and no political issues are involved, you have a reasonable chance of getting *some* justice; but you will not get full justice nor will you even get what you do get without a good deal of trouble and disappointment, not to mention expense! In the same way if you provide them with everything that the human mind can devise to promote their health and well-being, you have a fair chance of breeding *some* Grass Parrakeets, but you will not breed as many as you hoped to do, nor will you escape unexpected worries and tragedies.

Last autumn, in preparation for the present season, I secured an imported cock Elegant and a home-bred hen; an imported cock Turquoise and a home-bred hen; an imported pair of Bourkes, and an imported pair of Splendids.

Although the cock Elegant arrived a bit late in the year for turning out, I decided to risk him in the aviary and he and the hen passed through the winter uneventfully. Elegants are among the hardier and better-behaved of the Grass Parrakeets and one or two aviculturists, by combined good luck and good management, have been able to maintain a healthy breeding stock for a respectable number of years. In some cases they have also kept their birds without artificial heat and this was the plan which I adopted, although, in the end, I had cause to regret it. In April the hen went to nest in a grandfather clock box in a sheltered part of the flight. A few days after she had started to sit an exceptionally hot April day was followed by an exceptionally cold and foggy night. As a result, I found the cock, early next morning, very ill with inflammation of the lungs, and he died an hour or two later. The hen carried on and hatched and reared three good young ones, two cocks and a hen. Lately I have obtained another imported cock for her.

At this point I may, perhaps, say that my Grass Parrakeet aviaries are on fixed sites with tiled floors and are 20 feet in length. They have cosy closed-in shelters with sanded floors.

The hen Turquoise, a home-bred one, I had had with a cock the previous summer. She nested twice, but of the two young birds in the first round one died and one was killed by the cock as soon as it left the nest. In order to prevent a recurrence of the tragedy, I removed the cock when the second young bird was hatched, and the hen reared it by herself successfully. I disposed of the youngster and its murderous parent, and hoped to make another and more satisfactory start with a new male. This, however, proved easier said

than done. Although they go to nest freely, Turquoisines are, next to the exceedingly difficult Rock and Orange-bellied Grass Parrakeets, the most difficult members of their family to deal with. Though they, too, have been wintered out-of-doors, they get most of the ailments which Parrakeet flesh is heir to, and they do not make good patients, having no great amount of stamina to resist disease. If you give them too much hemp, or if they feel bored with life, they readily take to feather-plucking. They are also exceedingly temperamental. Married couples are given to violent disputes, and many cocks are wife-beaters, and even killers and, as already indicated, some will also destroy their offspring. Well-behaved pairs certainly do exist, but there are all-too-many which are *not* well-behaved ! Another trouble is that the young birds are more apt to die in the nest than with almost any other species of Parrakeet.

There is a further difficulty. The Australian authorities have, I understand, recently tightened up the regulations dealing with the export of native birds, so that if you obtain stock from law-abiding individuals or institutions, they will probably to-day have come from the aviaries of Australian aviculturists and will, more often than not, have been discarded by the latter for some breeding vice or defect, the exact nature of which you will in due course discover ! Australian fanciers have a habit of keeping their birds in aviaries which are much too small and this factor, also, does not encourage good health or good manners in birds which have been long confined in them.

The new cock Turquoise and his mate, like the pair of Elegants, came through the winter successfully. They too, went to nest in April and the cock, unlike some which I have mentioned, proved a most gentle and devoted husband. Unfortunately, however, his former owner still had an excellent reason for parting with him, the reason being that he appears to possess an unexpected and unwelcome enthusiasm for football ! As soon as his wife started to lay eggs he spent most of his time in the nest-box pushing and kicking them round the place, which did them no good, and entirely prevented her from sitting peacefully on them. After he had ruined two clutches in this way, I decided that desperate measures must be taken. When the first egg of the third clutch appeared, I removed him to another aviary occupied by a bachelor cock Bourke with whom, though very restless, he lived in perfect amity, both gentlemen vindicating the reputation of their respective species of being inoffensive towards other birds.

The hen Turquoise took her separation very badly and, for a long time, I fully expected she would not sit as, until her sixth egg had been deposited, she was off the nest for the whole day on alternate days. However, at the finish she did decide to incubate and hatched two of her eggs. One chick died almost immediately, but the other

was reared and proved an exceptionally fine young cock showing a trace of his red wing-bar even in nestling plumage. When he was independent I hoped to put the pair together again and secure a second brood, but the very day I meant to put the cock back with his mate, he fell ill. His illness moreover, was a long one, and when eventually he recovered the hen had dropped into moult and he quickly followed her example.

To cope with the problem of temperamental cock Grass Parrakeets one really needs an aviary with a partition and a shelter at each end, so that, when need arises, one can shut off the cock, while still allowing him to see his mate and, if he wishes, to feed her through the wire-netting partition.

One very foolish mistake which people are apt to make with Turquoisines if they should get a well-behaved and prolific pair, is to over-breed from them and allow them to have as many as three nests in succession. A policy which is detrimental to the health even of the hardy Budgerigar is far too great a strain on the delicate constitution of a Grass Parrakeet and in England, at any rate, if a pair of Turquoisines are allowed to rear three broods in one season, they are most unlikely to rear any in the next, probably because one or other of them will have died before another spring comes round.

The two imported Bourke's were fine specimens and delightfully tame and steady. They also possessed an appetite for green food which is rather unusual in their species.

Bourke's are not really Grass Parrakeets at all, but are a species wholly distinct and with no near relatives of any kind. They make excellent foster parents for the Green Grass Parrakeets, but they seem unable even to get as far as fertile eggs if they are mated with them. They are desert birds, and may not even live on grass seed but on the seeds of small plants other than grass which are found in dry areas.

Bourke's certainly *can* die and they equal, and possibly even exceed, the green Grass Parrakeets in their capacity for cracking their skulls against the wire-netting top of their cage or aviary flight, for which reason a covering of branches or some other material is highly desirable, to warn them to check the impetuous upward dash of their flight in a sudden alarm.

Taking everything into consideration, however, they are a good deal hardier than the true Grass Parrakeets and although the members of the British stock now remaining are, from what I have seen of them, often miserable runts, the species I am given to understand, is firmly established in some Continental countries and also in America. Although I have known them suffer from septic fever, they are, in the main, much less susceptible to infectious disease both on the voyage and in aviaries after their arrival and, when in good condition and provided with a dry and cosy shelter, they certainly can be wintered

without heat. When of decent size and colour they are charming little birds, with a soft beauty of colouring which matches their gentle musical voices and the pretty whistling sound of their wings. The couple which reached me last autumn at first certainly looked and behaved, like a pair, both cock and hen showing the signs of being in breeding condition normally indicative of the two sexes. After a week or two, however, they both began to exhibit symptoms of eye disease. Strange to say, however—and here again the difference from what would have happened if they had been green Grass Parrakeets was most striking—they did not appear to take the trouble very seriously. They rubbed their eyes and closed them a bit, but it did not seem to prevent their general health from being good nor even, amazing to relate, their coming into breeding condition! (At this time they were being kept in a flight cage in the bird room.) As the weeks went by, however, a mysterious change seemed to come over the “hen” Bourke. “She” and the cock in due course both recovered from the eye disease but “she” also showed signs of recovering from being a hen! In fact, when spring came round the two birds were, to all appearances, well-developed cocks and when I obtained a real hen and put her in the aviary, the difference was most marked. The strange phenomenon of change of sex has of course been observed in one or two species of birds, but not, so far as I am aware, hitherto in the parrot family.

The new hen, also an imported bird, I put with the cock who had always been a cock and moved the other to an empty aviary.

The pair in due course went to nest and hatched and reared one good young one. The hen then went to nest a second time, and hatched four more, but when they were only ten days old the cock started to misbehave himself and knock his wife about so badly that she was unable to attend properly to the wants of her family, with the result that two of them died. The remaining two, though still not fully fledged, I took out of the nest-box and put with their mother in a cage in the bird-room and there, notwithstanding the rough treatment she had received, she reared them and reared them well.

It is very unusual for a cock Bourke to misbehave in this Turquosine-like fashion. It may be that he had been getting too much hemp and wanted to nest again prematurely. The giving of hemp is always a bit of a problem. An unlimited amount is undoubtedly very good for growing young birds, but it may get their fathers into too high condition and cause them to ill-treat their mates or their offspring.

The three young Bourkes which I have now put in the aviary with the odd cock have done very well and it looks as though the particular type of aviary in which I keep them suits the species. They are two cocks and a hen. Even when the birds are fairly young the sexes are not very difficult to distinguish, the hens being smaller and more

slender and having decidedly smaller heads. They also, when adult, have no blue on the forehead but some cocks also lack the blue, especially if they are aviary-bred and of degenerate stock.

The Splendid Grass Parrakeets had a rather unfortunate start as the cock had been placed for a short time in a travelling cage with a spiteful little Dwarf Parrot and arrived with a broken wing. In time his wing mended sufficiently to enable him to fly but it always remained dropped, spoiling his appearance. It was, however, the hen who proved the first casualty. One day in the middle of winter, when she had almost completed her moult and seemed quite fit, I found her looking slightly ill and although at first it looked as if we had got her into the hospital in good time she went down very rapidly and was dead the next day. The post-mortem report was "coccidiosis", but, as the particular post-mortem examiner to whom I was sending specimens at the time would have given coccidiosis as the cause of death of a bird which had been shot or knocked on the head, I am doubtful of the accuracy of the diagnosis as the symptoms were not those of that very distinctive ailment.

I thought that my chance of breeding Splendids was ended for the year but by good fortune I was able in the spring to obtain another hen from Mr. Holmes Watkins who is having such remarkable success with this species, a success which I trust he will long continue to enjoy. When I introduced the new hen to her mate I hoped to see the courtship display of this, the most gorgeously beautiful of all parrakeets, and wondered what it would be. The cock, however, though quite interested in the new arrival, seemed to feel that he was quite beautiful enough in his ordinary everyday deportment without any extra demonstrations being necessary; so beyond walking about at a distance and saying "Chuk!" from time to time, he did not do anything out of the ordinary. They soon, however, became friendly and the hen, who incidentally was less than twelve months old, took to a grandfather clock nest in the flight. Two young birds were hatched and reared leaving the nest just before I returned from Devonshire, the hen laying a second time. When the young had been out for only four days the cock became spiteful with them and I had to remove them hurriedly, feeling, for the first time, that it was perhaps lucky that his wing *had* been damaged or otherwise he might have caught and killed them before I was able to intervene.

The second family of four hatched in due course out of the six eggs laid. The cock was by now becoming very tame and used to wait expectantly for me to bring him some tit-bit. I grew very fond of the beautiful little fellow, a fact duly noted by X, the evil spirit who removes the choicest members of one's collection of birds with a regularity and ingenuity which mere chance cannot adequately account for! One morning, therefore, when I went to feed him, the

cock Splendid was not in his accustomed place. I looked inside the shelter and on the floor of the shelter and again in the flight, to find him in a corner of the flight. It needed only a second glance to see that he was ill. He was indeed very ill and died within a couple of hours. The post-mortem revealed, in addition to two long-standing ailments which one would have thought would have prevented him from breeding, evidences of a blow on the head, which, as he could not fly very fast and the roof of the flight was well covered with branches, was probably dealt him by X, exasperated that he had been unable to get rid of him by other means ! His widow carried on with her task most heroically and has successfully reared all four young ones which are very fine specimens indeed, but, as she appeared one day with the feathers knocked off the back of her head and the lower part of her rump I gathered that X had had a swipe at her also ! With the claims of a growing family to attend to she became even tamer than her mate and is indeed the tamest and most intelligent Grass Parrakeet I have ever had. She always greeted me with the disyllabic whistle of her species which is so unexpectedly deep in tone for such a small bird. Once, when I went to see how she was getting on and the supply of green food was getting rather short, she flew down and nibbled pointedly at a faded leaf of spinach-beet, looking up at me as she did so. I promised to get her a fresh supply but, having other things to attend to, I forgot all about it. Some time later I walked past the front of the Splendid's aviary nearly thirty yards away, to be arrested by a penetrating whistle from the little lady inside, "What about that spinach-beet you promised to get me ?" I apologized and went and fetched some !

Recently, rather feeling that I was tempting Providence, as I probably am, I obtained three Rock Grass Parrakeets from a Continental dealer. Rock Grass Parrakeets have seldom, if ever, been bred in captivity and have a bad reputation for getting over-fat. So far, the three new birds seem to be doing well and, being rather wild, take plenty of exercise. I have arranged the two perches in the flight so that they are as far apart as possible and, as I believe the species lives largely on the seashore, I have provided a dish of special sea sand and seaweed collected from below the tide-line in case the iodine should provide something essential to their health. Rock Grass Parrakeets are perhaps the most difficult of their family to sex and a single bird is always apt to give one the impression of being a cock, possibly because, by comparison with the more familiar Grass Parrakeets, the species is a large one. If, however, both sexes can be seen together and studied at one's leisure, genuine cocks can be distinguished by the rather greater amount of blue on the face and the slightly heavier head.

Since writing the above, X has made two further onslaughts on the unfortunate Splendids. Although various steps had been taken to

render such a catastrophe unlikely, I went out one morning to find one of the young ones dead with a fractured skull, and the hen and the others with similar, though less serious, head injuries. I then string-netted the whole of the top of the aviary flight only some time later to find another young one dead in the shelter with a fractured skull.

The Rock Grass have turned out to be three cocks and, what is more, no two will agree together, as even when in moult they fight dangerously !

* * *

OBSERVATIONS ON BARBARY-DOVES KEPT AT SEMI-LIBERTY

By DEREK GOODWIN (Virginia Water, Surrey, England)

The Barbary-Dove (*Streptopelia risoria*), the Ring-Dove of the layman, and—most descriptively—Blonde Ringdove of the Americans, has long been a favourite bird of mine. It has much to recommend it, being hardy, beautiful, harmless to other birds (except related species), and a free breeder. This last is, perhaps, a doubtful virtue, since it is not always easy to find good homes for the surplus young.

Since 1946, and to some extent before the war, I have kept these birds at semi-liberty. So kept they are incomparably more beautiful and interesting than when confined, even in the largest aviary. Some initial trouble may be involved in settling the birds, but it is well worth taking for the extra pleasure and interest which will accrue. This species has none of the homing "instinct" shown by the Pigeon (*Columba livia*) or the Turtle-Dove (*Streptopelia turtur*), and even after years of liberty, may be hopelessly lost less than a quarter of a mile from its home. I think this only happens when it is fleeing from a pursuing hawk, or has been disturbed at night, and thus failed to notice the way it has gone. For those desirous of keeping these birds at semi-liberty, the following hints should prove useful, although, of course, much will depend on the individual birds and local circumstances.

(1) Train the birds (before liberating them) to respond to a particular whistle or call to food.

(2) At first let out only one bird of a pair at a time, and the first few times call it in again after five minutes or so, and, if possible, before it has taken a long flight.

(3) Never let out unpaired birds, unless they are home-bred specimens, or have been flying at liberty for some time.

(4) Do not let out young until they are strong on the wing (about three weeks after leaving the nest) unless you do not mind losing a percentage to cats and hawks.

(5) Make the breeding pairs nest inside a shed, aviary, or out-house. This is easily done by shutting them up in a suitable place when they are seen to be looking for a nest-site.

(6) Call the birds inside a building to feed each evening, and shut them up till morning. In time—at least in winter—roosting inside will become second nature to them, and they will go in to roost like fowls or pigeons. This is less important (and more difficult to achieve) in summer, but when the trees are bare the Doves will almost certainly be taken by Tawny Owls if allowed to roost outside.

(7) Do not shut up birds with others that persistently attack them. This is the most important rule of all, its infringement is cruelty of the worst kind, and one of which many are guilty. In practice this means that except in autumn and winter only paired birds and their still dependent young can be confined together.

The above rules are, of course, a counsel of perfection, and I would not like to say how often I have neglected most of them. In this matter, as in others, however, those who set a bad example are often best qualified to give good advice.

At liberty the Barbary-Dove is a thing of grace and beauty. Its soft buffish-fawn plumage—which bleaches to near-white with long exposure to sun and rain—relieved by the black neck-ring and crimson eye, contrasts pleasingly with vegetation. It has the same swift flight, with “flicking” wing-beats as the common Turtle-Dove, and flies freely. The display flight of the male is similar to that of most “turtle-doves”. The bird flies upwards with loudly-clapping wings, then glides down, often in a half circle, with wings and tail widely spread. I shall never forget the thrill I felt when I saw a bird which had been free only a few minutes perform this flight, which almost certainly neither it nor its ancestors for many generations had previously been able to do. Provided care is taken to see that all birds are getting fed adequately there is no need to segregate breeding pairs when at liberty. The vanquished can always flee from the victor, and the quarrels and jealousies result in an amount of activity that would surprise anyone who only knows this species as a cage-bird.

I have seen it stated that Barbary-Doves at liberty fall an easy prey to natural enemies, and that they do not respond to the alarm notes of other birds. This has certainly not been the case with mine. The tameness which these birds display towards human beings in no way affects their response to predators. Of course, birds that are in imperfect health (which most birds bought from dealers are in my experience) will have their escape reactions affected adversely thereby. Similarly, recently released birds are handicapped by their ignorance of the neighbourhood. These considerations—and the relative vulnerability of fledgelings—apply equally, however, to any other species, wild or domestic. My Barbary-Doves react to the alarm

notes or alarmed behaviour of passerine birds. Whether such responses are due to "learning" or innate recognition of the "frightened" tone discernible in all alarm notes, I am unable to say. Each year I lose one or two adults, and sometimes several young. But it is astonishing how even young ones which—owing to my being too busy to supervise them—have been allowed to wander forth into a world in which predators, both furred and feathered, are common objects, yet manage, more often than not, to survive. With pairs that actually nest outside it is otherwise. Sometimes one or two pairs of my Doves will nest away, usually at a distance from the garden. This only happens because I have not taken the precaution of shutting them up when they have reared one brood and are looking for a new nest-site. In such cases the behaviour of the pair makes it obvious when they are sitting and when feeding young. But in all these cases the young have never appeared and the parents' behaviour shows that they have been lost when from two to three weeks old. I do not know what creature is responsible, but cats, Jays, Crows, Magpies, Tawny Owls, and Sparrow-Hawks are all common locally, and all potential fledgling-eaters.

The escape reactions of the Barbary-Dove when confronted with a hawk (in all cases of fairly close approach which I have seen the Sparrow-Hawk (*Accipiter nisus*) has been the species involved) are of interest and worth describing in some detail. When a hawk is seen high above, or at some distance, the Dove usually remains still and watches it. Usually it shows its fear by sleeking down its plumage, making itself "long and thin" and giving its alarm note. The close (and usually sudden) approach of a hunting Sparrow-Hawk elicits one of two reactions. Most commonly the Dove flies forwards and upwards with a noisy clatter of wings and a speed and acceleration reminiscent of a flushed Partridge. At other times it will "freeze" on its perch in a crouching posture with feathers sleeked down and head stretched forward. If it takes wing the Dove may fly straight into a tree and remain there until it has got over its fright, or else fly forward very fast, gaining height as it goes, for several hundred yards, then turn and fly in high, wide, circles, coming lower as its fears diminish, and finally alighting, still nervous and "on edge", on the highest point of some building. Taking cover, or flying high and circling, seems to depend primarily on whether or not there is a suitable tree in front of the Dove when it begins its headlong dash for safety. It is amazing that a bird travelling at such speed can enter a tree without doing itself serious injury. No doubt it skilfully avoids the larger branches, but at times, to judge from the sound, it crashes through the smaller twigs with considerable force.

I am not sure what determines whether the Dove will freeze or take wing. Crouching in birds—when used in reference to enemies—

is, of course, the preparation or "intention-movement" of leaping up to run or fly. When the bird freezes in a crouching posture (which is a regular and marked behaviour pattern in many species) the reason—psychologically—is almost certainly because some other impulse is in conflict with and inhibiting the impulse to flee. Wild Turtle-Doves (*Streptopelia turtur*) usually freeze in the same manner as that described above if approached by man when they are incubating. Here it is obviously parental feeling and the brooding urge which conflict with and—up to a point—inhibit freezing. One might expect that in the Barbary-Dove crouching and freezing would be a response to a lesser degree of fear than that which elicits fleeing. This does not seem to be the case. On four occasions I have seen a Barbary-Dove (three different individuals) "freeze" in this manner when a hawk suddenly appeared very close. I had the impression that the Dove was literally "paralysed with fear" at the nearness of its enemy. In each case the hawk—which was actually hunting for food at the time—flew straight on over the Dove, passing within a yard or two of it, and apparently failing to notice it. It seems probable that a Sparrow-Hawk in its low, fast, hunting flight, relies chiefly on their movements for spotting potential victims. If this is so, it is doubtless likewise with other accipitrine hawks and thus natural selection might well have favoured survival of those Doves which, when surprised *at very close quarters* by one of these hawks, froze in terror instead of making a vain effort to escape. It is worth mentioning that I have never seen a Barbary crouch and freeze when surprised on the ground, but I have not seen one so surprised at such close quarters as those mentioned above.

The proverbial tameness of the Barbary-Dove towards human beings is shown equally by young that are allowed their liberty from the first as by caged birds. If approached slowly fledglings will allow themselves to be picked up by hand, and although most adults will not permit this, they come readily to the hand for food and so can easily be caught when necessary. Occasionally birds that are much more wild and nervous than normal—although tame by comparison with other species of pigeons—may crop up. One such bird was not only nervous and "jumpy" and very reluctant to feed from the hand, but it had an exceptionally neat head, small delicate bill, and trim shape, thus suggesting a correlation between physical appearance and mental qualities. But this analogy must not be pressed too far, as in the domestic Pigeon birds approaching the wild type are not—other conditions being equal—more timid than most of the coarse monstrosities favoured by the pigeon fancier.

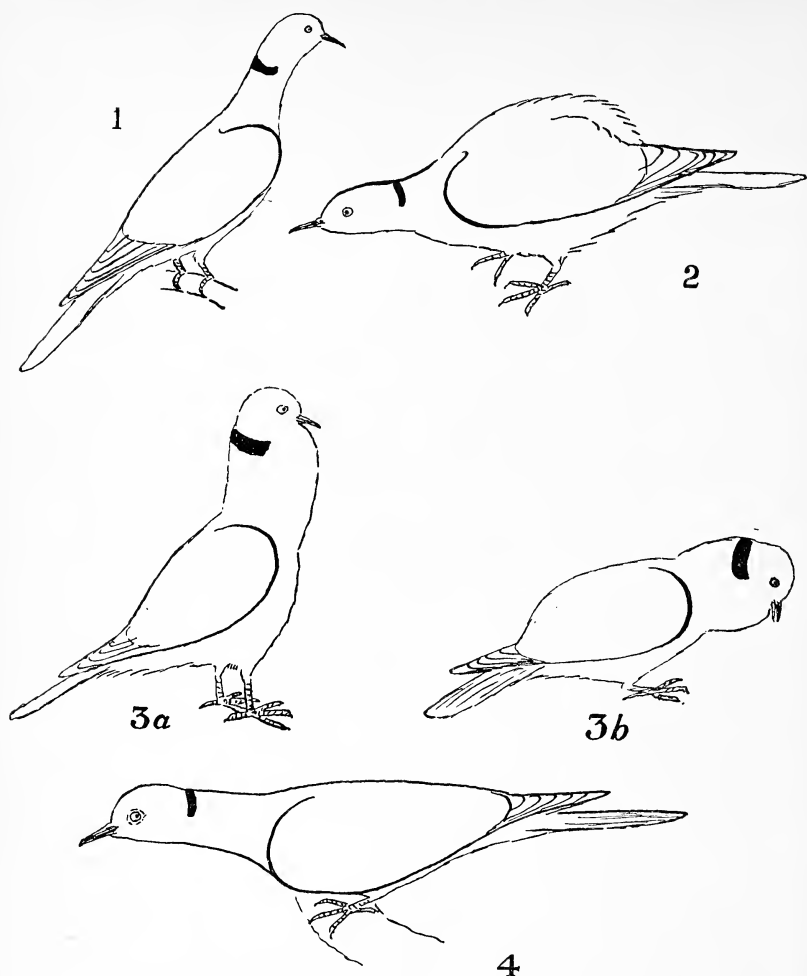
The notes and much of the sexual behaviour of the Barbary has been dealt with by many authors, notably Craig and Whitman, whose works all those interested in pigeons are advised to read. Nevertheless,

it will not be out of place briefly to describe some aspects of it and to deal more fully with observations that are not, so far as I know, duplicated in their works. The coo of the Barbary-Dove, the well-known "Kuk-k'rrooo" or, closer at hand "Kuk k'rrooo-wa!" is to me one of the most beautiful of all bird sounds. The coo of the female is less loud than the (full) coo of the male, and more broken and almost "trilling" in the middle. The tone and emphasis, as well as the loudness of the coo, varies according to its context, but the differences are not very marked, and cannot well be described in words.

The bird coos when bowing in display, when calling-to-nest, as a greeting to its mate when the latter arrives to take its turn on the nest, as a contact call when the mate is out of sight, to signify its readiness to feed fledged young, when it hears a noise at night, and as an equivalent to the song of male passerine birds. The situations listed above, except for the first two and the last, may not always elicit cooing.

The cooing at night is particularly interesting, since it seems such a potentially lethal habit. It is shared, of course, as is well known, by the domestic pigeon, but as tame Stock-Doves do the same thing, it is unlikely that it is a habit that has arisen—though it may have hypertrophied—under domestication. The night cooing is, or seems to be, a response to some disturbance sufficient to awaken or attract the attention of the roosting Dove, but not sufficient to frighten it (? or to frighten it seriously). As we have seen, the coo is always a note of self-assertion, and may sometimes have a threatening significance. It seems possible then that the Dove coos in response to some mildly alarming stimulus, much as a man might whistle or talk to himself in homologous circumstances. Probably the carrying out of the self-assertive act of cooing has a "reassuring" effect on the bird performing it. Thus the "ignorant" natives in some parts of the world who—so I am told—say that when the Barbary-Dove in its cage coos at night, it does so to frighten away evil spirits, are, in a sense, right in their psychological implications if not in their material interpretation thereof. Female Barbaries do not normally use the bowing display—even when homosexually paired—but an unpaired female, not in male company will often become very "masculine" in behaviour, and display to any strange bird placed with her. Cooing, and to a lesser extent the laughing cry, appear to be linked with the reproductive cycle, and birds that are sexually inactive are relatively—but not entirely—silent.

Both sexes utter the laughing cry (a mirthless, jeering laugh) that is so characteristic of the species. Craig's statement that this cry corresponds to the human word "Hello" and can have as many different meanings is most apt and true. It is fundamentally, I think, a note of aggression, and the Dove always utters it in a posture (head



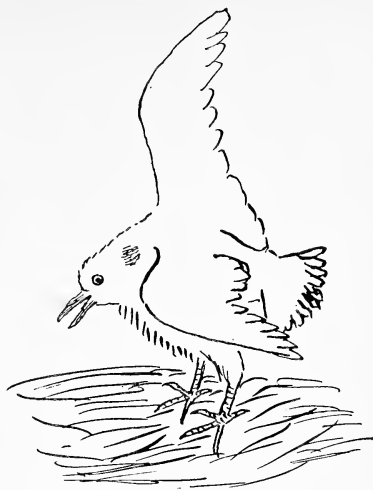
1. Alarmed posture. 2. Aggressive posture, jumping forward to attack, the laughing cry is uttered in this position. 3. The two phases of the display. 4. Crouching and freezing at approach of hawk.

Note.—The above figures are not drawn to scale.

lowered and thrust forward, back arched, rump feathers erected) which is essentially one of attack, although it has become incorporated in the sexual behaviour of paired birds. The Barbary-Dove uses this cry when it approaches another bird with aggressive or sexual intent, when it sees its mate after a short absence, when it alights on a perch *in its territory* or (especially) when it alights *at or near its nest*. The oft-repeated statement that it gives this call "every time it



5



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5. Defensive threat posture (Adult). Compare with Fig. 6. 6. Defensive threat posture (Fledgling).

alights" is, I feel sure, based on observations of caged birds which had of necessity to be "alighting near the nest" every time they changed their position. The laughing cry is used by both members of a pair immediately after copulation. The male bird, when hopping towards another bird (if it is a stranger or his own mate, not if it is a known rival) in the aggressive posture and giving the laughing cry, will often change into display and at the moment of transition the laughing cry merges into a coo, the intermediate sounds being almost comically curious.

I do not find my Barbaries breed throughout the year, as they are said to do when caged. In early January there is a resumption of frequent cooing, its intensity being dependent rather on the amount of sunlight than the temperature. Sometimes a pair will lay in that month, but more often it is late February or March before the first eggs are laid. Breeding then continues till August or September. By mid-September the adults are in full moult and breeding has usually ceased, although there are often young still in the nest. Once a pair laid eggs in late September and reared the resultant young successfully. Barbaries usually lay again, in a new nest, when the young are from three to five weeks old, sometimes even earlier. The female ceases to feed the young when, or soon after, she again begins to incubate. She tolerates and seems rather to invite than repel their company until the eggs hatch. The moment an egg of the second nest hatches she ceases to tolerate the young of the first brood, and

attacks them fiercely if they are in the vicinity of the nest. The male continues to feed the young of the first brood whilst incubating the eggs of the second, or at any rate for some time after incubation commences, but he usually ceases to feed them before the second brood hatch. After this happens he never feeds the older young, and gradually ceases to tolerate them, but he does not show the same sudden change from friendly tolerance to violent hatred as does the hen.

In order to effect some compromise between my desire to let my Doves fulfil their natural impulses and my desire to have the minimum number of young produced, I allow each pair to rear only two, or at most three broods per year. This I achieve by boiling the eggs of at least every other clutch. I have read that if Doves are not allowed to feed young after sitting the soft food "sours in their crops" and makes them ill. This, I am sure, is a fallacy. I have had many different pairs sitting on boiled eggs, and have never known one show signs of illness. Whether in the absence of feeding the soft food is shed off I do not know, but close watching of Doves feeding very callow young has convinced me that some of the soft food brought up into the gullet is normally re-swallowed by the parent. Doubtless it then passes from the crop to the stomach in the normal manner and does not, in some strange way, remain in the crop and go sour.

Paired Barbary-Doves show great affection for each other, and should they be accidentally or deliberately separated for some time their excitement on being reunited is touching. When at liberty their quarrels with their neighbours doubtless strengthen the bond between them. Very rarely a pair that are nesting will suddenly, and inexplicably, start to fight each other in the vicinity of their nest. Even on the two occasions when I witnessed the commencements of such fights I was unable to determine what "started them off". Once such a fight is on each bird seems to regard the other as an intruding stranger. Since both are on their own territory, indeed at the very heart of it, each fights with the utmost determination, and the more opposition it receives the more its "self-righteous" fury increases. Since morally both birds are "in the right" this is one of the few instances where the issue of a fight between two birds of the same species depends on sheer physical strength. Hence the female is always worsted in the end, although she fights with reckless courage, flying back to the nest site and renewing the combat no matter how many times she is beaten to the ground. Fearing that she might be killed, I have always taken away the female at this stage, when she has been to all appearances on the point of complete collapse. It has been some hours before she has appeared recovered and on the pair being reunited they have greeted each other "as if there had never been a cross word between them". These rare fights between paired birds appear to take place because for some reason the partners

suddenly react to each other as they would to the sight of a strange Dove at their nest-site. How or why this occurs I have no idea, but it may (or may not) be significant that I have never seen such a fight between pairs of females, whereas two males paired together—who were normally devoted to each other—had at least four such fights during the two years that they were paired.

That two female Barbary-Doves will often pair together is well known. Such pairings never take place if an eligible male is at hand, but once paired personal affection, or habituation, will keep the two females together, even if an active male is trying to entice one away. Such females, although regularly performing the mating ceremony with each other, nevertheless often adopt the coition-inviting posture if a male displays to them. Hence, if they are allowed to mix with other birds, such pairs are not denied the joys and trials of parenthood. But the owner should remove two of the four eggs laid.

It must be emphasized, since the contrary has often been inferred, that Doves that form homosexual pairs are in no sense "abnormal", nor do they when so paired show behaviour normally confined to the opposite sex. The most they do is to show behaviour patterns *that are common to both sexes*, but that one sex usually indulges in to a much greater degree, rather more than they would if homosexually paired. For example, "calling to nest", taking the active role in copulation, and seeking and bringing home nesting-material are all actions normally performed chiefly by the male, but by the female—even in heterosexual pairs—to some extent. When two females are paired, it is obvious that each will be presented with the stimuli to perform such actions more often than would normally be the case. On the other hand, displaying to the mate (bowing and cooing) is a behaviour pattern confined to the male in normal pairs (although the isolated *unpaired* female may become "masculine" and display), and *effective* nest-building movements are confined to the female. Neither of these two behaviour patterns are—in my experience—shown by the opposite sex as a result of homosexual pairing. The female paired to another female never displays to it. The male paired to another male does not build a nest, although if the nest-site is a box or basket from which the material he and his partner bring cannot easily fall an apology for a nest may accrue from the birds sitting on the material brought.

Pair-formation between two male Doves is of very rare occurrence. It has been said to occur through one bird cowing the other to such an extent that the latter shows female behaviour. This I very much doubt. Certainly if after a fight one male was so exhausted that it crouched on the floor the other might, in all probability, attempt to copulate with it. The situation releasing copulation—or attempts thereat—is the very simple one of a Dove remaining motionless in

a crouched or flattened posture. Even a heterosexually paired female will usually attempt to copulate if presented with a dove-skin stuffed in such a posture. I have seen only one pair of male Doves, and one of male Pigeons (*Columba livia*), but I took some care in observing their behaviour, and in neither case was there anything to suggest that one of the partners was "cowed" by the other, and they both continued to show characteristically masculine behaviour.

The behaviour of the two male Barbaries is worth giving in some detail, since in other accounts of such pairings the birds usually appear to have been captive, whereas these were for the most part allowed their liberty in the company of others of their kind. They were two nest-mates, bred in early spring from a pair which I had given to a friend. The parents were lost and these two young were kept together in a small outhouse till October, and then given back to me. I placed them in a roomy shed along with three other birds of the same year (which subsequently proved to be all females) and two old females that were paired to each other. The birds were kept confined during the week and released all day on Saturday and Sunday, the only days I was home at evening early enough to get them in for the night. I was busy at the time, and paid them little attention. The sex of the birds soon became evident (apart from behaviour, when related birds are compared, the cocks are paler in colour, longer in shape, and heavier in the head than the hens), but it was not until March that it suddenly struck me that although I had for over a month seen two Doves "nesting" on a suitable ledge, no eggs had been laid and no proper nest built. Suspicion once aroused was soon confirmed, the two males were paired together—having no doubt formed a deep affection for each other when they had been isolated from all other Doves in their youth—and the others had sorted themselves out into two pairs of hens, and an odd hen who was making frantic attempts to get herself paired to one or both of the two males.

Observations on this male pair gave interesting suggestions as to the most important factors binding normal pairs, and confirmed my previous opinion that the mutual fondling and nest-calling on the nest-site plays a more important role in maintaining the pair-bond than does the mating ceremony. These two males seldom mated with each other, and they very rarely displayed to each other. They would, however, often perform both these behaviour patterns as a result of the excitement of seeing each other again if they had (artificially) been kept apart for some hours.

They constantly and persistently chased female Doves (appearing well able to distinguish their sex, but perhaps this was due to individual recognition), displaying to them, and attempting to copulate with them. They never indulged in pre-copulatory billing with a female

(as they did when they mated with each other), even when, as often happened, an unpaired hen bird eagerly tried to initiate it with one or other of them. They never showed the slightest sexual jealousy towards one another. It was an extraordinary sight to see them displaying simultaneously to the same female, one on either side. Even more spectacular was their display flight, as they would fly up together, side by side, and perform "in time" with each other.

Except for their four fights previously mentioned, which were exactly the same as those sometimes indulged in by normal pairs and of whose meaning I am completely ignorant, the two brothers always gave the impression of being "two minds with but a single thought, two hearts that beat as one". Since the "single thought" commonly centred around beating-up a neighbour or trying to inflict on his wife a fate popularly supposed to be worse than death, their partnership was probably less amusing to their fellows than to the human spectator. These two males hatched and reared many young ones, their owner acting as a "good fairy" and supplying them, after they had been "nesting" for some time, with a nest of sorts complete with eggs. Under such conditions the sight of the eggs naturally induced them to start incubation at once. They found no difficulty in dividing the daylight hours on duty between them, but were at first reluctant to sit at night. This was understandable, since the male normally, in addition to not sitting at night, roosts well away from the nest as soon as the female starts to sit. On the other hand, Doves respond to the sight of their eggs lying uncovered, in some cases even to the sight of the partner who should be on duty away from the nest, by going to the nest and commencing to incubate, even "out of turn". These two males were thus nightly torn between conflicting impulses. Neither "wanted" to incubate all night and whichever was sitting in late evening would leave the nest at the "least excuse". If, for example, the other brother alighted near the nest-site, the sitter would consider himself as relieved, and hurriedly quit the nest. This often resulted in the eggs being left all night, but if I caught one of the errant birds, showed it the exposed eggs and then placed it on the nest-edge it would usually cover them. But in every instance the birds seemed to "learn" after the first few days of incubation—or the brooding-drive became stronger—and the eggs were not thereafter left even at dusk. It was not always the same bird which remained on the nest at night.

After this state of affairs had continued for some two years I decided that the following spring I would separate the brothers and see if they would then pair normally if offered suitable mates. I had little doubt they would prove quite normal, although I was a little curious. In spite of their constant pursuit of females and forcible attempts to mount them, on one occasion when I had seen a female eagerly

soliciting one of them, he had merely walked round and round her, continually making the intention-movements of mounting, but seeming "unable" to do so. But I was not able to put the matter to the proof. I neglected to get the brothers in one autumn evening, and I never saw them again. I expect they were killed by a Tawny Owl, but shall never know for sure.

My Barbary-Doves seem to have little idea of foraging for themselves. They pick about the garden and sometimes on the near roadsides, but they do not go off into the fields as do domestic Pigeons. They eat the seeds of various weeds, and in late summer, although ready enough to take their usual rations, they are sometimes birds missing at mealtimes, and those that come often have crops half-full. Over one of their favourite resting-trees—a crab apple—black bryony grows in profusion, and the Doves feed readily on the dull red berries. Inexperienced birds often fill their crops with the berries of the mountain ash, but this makes them violently sick, the bird looks ill and vomits up the contents of both crop and stomach, and will never touch a rowanberry thereafter. On one occasion, thinking it would do no harm, I spent half an hour breaking up shelled acorns and handing the pieces to seven of my Doves who eagerly swallowed them. As a result all were very ill for days, three of them dying on the second and third days, and the rest recovering. It is strange that a food eaten with impunity by so many wild birds—although in captivity Jays are the only birds I know that will eat acorns eagerly—should have had this effect, but there can be little doubt the acorns were responsible as three Doves which had not eaten them remained perfectly fit.

The attacking posture of the Barbary-Dove, when the bird jumps forward with lowered head, uttering its laughing cry, has already been mentioned. This form of attack is probably always in some degree linked with sexual or territorial feeling (it is also shown with essentially the same movement pattern towards the mate). The attacking bird does not show fear, and it attacks with the bill. When Doves fight, that is to say when the attacker meets with opposition, the wings are the chief weapons used, the birds cuffing hard at each other, and each trying to get on to the other's back to strike down at it. When thus engaged they show to some degree the second form of threat posture. In this the bird puffs out all its feathers, raises the far wing, may spread its tail on the side towards the enemy, and strikes out with the near wing. This form of threat, the effect of which is to make the Dove look as large and terrifying as possible, is common to other Doves and Pigeons, and is shown by disturbed nestlings from an early age, usually before they are half-fledged. The young draw in loud puffing breaths and also make a snapping sound that is correlated with a movement of the mandibles and generally supposed to be made by their clicking together. No such snapping sound is

heard in the adults (although the adult male Stock-dove (*Columba oenas*) uses this bill-clicking in its display), but they draw the loud panting breaths and often give the alarm note—which in all Doves I know of is a very similar little gasping moan—very intensely. At low intensity, as with all other displays, the postures and movements are much less marked.

The above behaviour is shown when the bird seems to be torn between fear and anger, or, to speak ethologically, when its escape drive and aggressive drive are simultaneously activated. The intensity of the display is directly correlated with the degree of fear the bird is feeling. Hence it is usually seen in more extreme forms when the Dove is opposed to some other species than when intra-specific quarrels are concerned. I have seen a male Barbary and a female Turtle-Dove (*Streptopelia turtur*) (at different times) in very intense “fear-threat” display when attacking a tame Magpie that alighted a few yards from the nest on which its mate was brooding. It is very commonly adopted by brooding Doves when a human being closely approaches the nest, although in full version it is shown less often by the Barbary than by wild species of Doves (in captivity) or rather timid domestic Pigeons. The tamer Barbary-Dove, although it often attacks the hand, does not usually go into very full “fear-threat” display when it does so.

Although we thus see that the bird appears to be impelled both by fear and aggressiveness, yet it is possible that the anger, and resultant aggressiveness, may perhaps have secondarily arisen *because* the bird was torn by conflicting impulses. In other words the brooding Dove may not stay on its nest and threaten and fight because it was, in the first place, impelled by aggressiveness as well as fear, but the aggressive feeling may have arisen because the bird was impelled at once by two conflicting impulses.

That conflicting impulses, which are of course at the same time always thwarted, or at any rate partially thwarted impulses, can in birds, as in man, arouse aggressive feeling is easily demonstrated with the Barbary-Dove. One has a Dove which is fairly tame, but still not quite tame enough to feed from the hand, and one tries to tame it by throwing it a few tit-bits, and then when it has eaten those lying near the hand one proffers it a peanut or other titbit in one's fingers. The bird—which a moment before was impelled solely by the feeding drive—will “bristle-up” into fear-threat display as it comes up to the hand, and will usually actually strike out with its wing as it takes the nut from the fingers. Sometimes indeed its courage will just suffice for it to come right up to the hand, but then fail, and it will strike out and hit the hand offering the food, but retire without taking the nut. Here one has evidently *made* the bird feel and act aggressively because one has forced it into a situation where it was impelled by the conflicting claims of fear and hunger.

From the foregoing it will be seen that the fear-threat display has something in common with crouching and freezing, in that both occur when the escape drive is inhibited. Psychologically, the different behaviour patterns may depend on whether or not aggressive feeling as well as other impulses are evoked by the situation. Biologically the behaviour, like most if not all behaviour patterns, would seem to have survival value. Except in reference to man, threat display and attack or defence of nest seems only to be shown to such creatures as the Dove might possibly defeat, or at least intimidate, and not towards those against which it could have no chance.

Alternative behaviour-patterns are shown by incubating Doves (taken as species, not as individuals) toward man. Birds of a comparable degree of tameness (or wildness) may *either* go into fear-threat display or else crouch and freeze on the nest. In my experience the same bird never shows both forms of behaviour on different occasions. If one puts one's hand under the bird in fear-threat display, it attacks it in a furious "hysterical" manner. If one puts one's hand under the "freezing" bird it makes no movement to defend the nest. Wilder birds flee the nest when approached—but after having initially either "frozen" or gone into threat display—and perfectly tame birds sit calm and unafraid, sometimes fighting the intruding hand, but showing no trace of fear when so doing. Naturally every intergradation between the three degrees of tameness may be shown. The above remarks apply to Turtle-Doves and Palm-Doves (*Streptopelia senegalensis*) as well as to Barbaries. Indeed, I must admit that Barbaries do not show the four behaviour patterns linked with the three stages of tameness very well, since they are very seldom wild enough to leave the nest when touched. Wild Turtle-Doves and Palm-Doves always—in my limited experience—"freeze" on the nest when approached, and never go into threat display, although a male Palm-Dove that had been in captivity only a few weeks did so.

If one puts one's hand over a brooding or incubating Barbary-Dove and grasps it lightly round the body, it may respond by sudden convulsive movements of both wings and legs. The wings are moved quickly, one would say they are beaten but for the fact that they are not unfolded and do not move more than an inch or so out from the body. The legs at the same time stamp up and down quickly and forcibly, so as to produce a rapid, almost rattling, sound as they strike the nest. This behaviour is shown by some birds more than others (by some not at all) and mostly when the eggs are chipping or the young still callow. The convulsive movements suggest fear, but they are given by perfectly tame birds that are used to being handled on the nest and will always accept food from the hand, even immediately after having given these movements. I think, however, that these movements may be a low-intensity form of some "injury-

feigning" behaviour which I have not seen. It is noteworthy that although this behaviour seems relatively rare, or ill-developed, in Doves, it has been recorded in a fairly intense form in the Indian Ring-Dove (*Streptopelia decaocto*) which is a very close relative of the domestic bird.

I find my Barbaries when at liberty perch with equal freedom on trees and buildings, with perhaps a greater tendency to rest on the former. They do not tend to choose large or high trees, but commonly perch from 8 to 20 feet from the ground. Even when perching on buildings they tend rather to alight or rest on one-storey buildings than on high roofs. For song-posts male birds choose exposed branches, roof-ridges, and especially the tops of telephone poles, but here again a fairly open situation rather than height seems to be the main criterion. Unpaired males naturally "sing" and wander more than paired ones. An adult male who was unpaired throughout the spring and summer 1952, spent so much time cooing in sun or rain that his plumage bleached several shades paler than that of his fellows. His two furthest song posts were a quarter of a mile apart.

At times a Barbary-Dove will vanish, and after it has been "missing, believed killed" for weeks or even months, will reappear none the worse. Whether the bird has got its own living or fed at someone's bird table in the interim I have never been able to find out.

Even more remarkable was the case of an old hen Barbary. In her tenth year she was sitting on a nest in a rose pergola. Coming down the garden one July morning, I saw the nest and broken eggs on the ground, which was bestrewn with Dove feathers. I assumed that an owl or hawk had killed the female on the nest. The following December, I received a post-card saying that my "pigeon" had been caught in his garden by a man living some six miles away. I fetched the bird, which proved to be the old female Dove, in quite good condition. It seems likely that she had been getting her own living, as being ringed and very tame it is unlikely that she would have been fed by people without being caught by them. Anyone catching her would surely either have informed me, or else removed the "name and address" ring from her leg. The bird is still alive and well, in her twelfth year. This, however, is no great age for a Barbary, and I believe birds of over 30 years old have been recorded in the AVICULTURAL MAGAZINE.

P.S.—The line-sketches in this paper are intended only to give an idea of the various postures described. They are not intended to be feather for feather drawings, and—as will I fear be painfully obvious—no attempt has been made at detailed exactitude.

KELP GEESE AND FLIGHTLESS STEAMER DUCK FROM THE FALKLAND ISLANDS FOR THE SEVERN WILDFOWL TRUST

By WILLIAM J. L. SLADEN (Oxford, England)

FALKLAND OR GREATER KELP GOOSE (*Chloephaga hybrida malvinarum*)

A pair of juveniles were brought into Stanley from Fox Bay, West Falklands, on 20th June, 1951. Details of their rearing by Mr. Perry, of Fox Bay, were obtained by post later. "Two very young goslings taken from a nest were reared on bread and milk. They were then run with the ducks and hens and picked up food there." I was also told that they would eat grass well. They were full winged and tame. As soon as they arrived in Stanley their wings were clipped. On 22nd June they were transferred to the Falkland Islands Dependencies Survey Vessel "John Biscoe".

Travelling Box.—The size recommended by Mr. Peter Scott for one-bird crates was 32 inches long, 24 inches wide, and 26 inches high. The birds were kept together in a larger crate as they were used to each others company. The sloping slats were 2 inches wide with 3-inch openings between, otherwise the design was the same as recommended in the Severn Wildfowl Trust Third Annual Report (1949-1950). Four feeding tins were tied to the slats with string. One each for fresh water, sea water, bread soaked in fresh water, and (after St. Vincents) bananas in fresh water. A sack curtain was draped over the front of the crate.

Cleanliness.—The birds stood on wire netting. A tray below the netting was an unnecessary refinement as the crate was hosed at least once a day. Careful attention was paid to thorough cleaning of wood work around the feeding tins. If this was not done once a day, mould would collect where bread was slobbered over the woodwork when feeding. When passing through the tropics it sometimes reached the sporing stage within 24 hours. Any food not consumed was thrown away daily when the crate was washed. The birds were usually sprayed gently with salt water and at no time during the voyage did they fail to preen themselves. In cool wet weather they were not sprayed.

Draughts.—When passing through the tropics the crate was put in a place of maximum draught, but in the more temperate zones, draughty places were avoided.

Food in the Wild State.—The usual food of the Kelp Goose is "luche", a flat green ribbon-like seaweed, *Porphyra umbilicalis*, which they pick up along the seashore. In autumn, birds are often seen wandering inland and Falkland Islanders have told me that they will feed on Diddle-dee fruit (*Empetrum rubrum*) and even grass. Two birds

(JB212/1-2) dissected on 22nd May, 1949, at Fox Bay had crops full of Malvina berries (*Myrteola nummularia*) and occasional leaves. One male (JB201/1) dissected 22nd April, 1949, had a crop full of stringy seaweed and occasional minute shells and crustacea intermingled. It is impossible to say whether the animal matter was purposely eaten or taken in unintentionally with the weed.

Food for the Journey.—Blaauw (1913) succeeded in transporting a captive Lesser Kelp Goose (*C. hybrida hybrida*) back to Holland by feeding it on dried luche which was soaked in water immediately before use. Alastair Morrison (1947) succeeded in bringing back a large number of the same sub-species. Through inadequate drying, most of his luche went bad, so the diet for the rest of the voyage had to be soaked biscuit supplemented by a little lettuce and luche. I had hoped to collect a supply of the seaweed but had no time before the ship sailed. The plan had been to dry it thoroughly and store it in 7-lb. tins with soldered press-lids to keep airtight for the tropics until required.

Dehydrated cabbage might be worth a trial. They liked it fresh, but would not touch it when cooked. It should therefore be tried soaked in cold water first.

Bread soaked in fresh water was always available. The two of them together never consumed more than one full tin a day (1 to 1½ lb.).

At Montevideo 100 lettuces were purchased. These were very small, 6 to 7 constituting an average English lettuce. A fresh supply of 40 lettuces, supplemented by some surplus leaves from the galley had to keep them going from St. Vincents, Cape Verde Islands to Rotterdam. The St. Vincents lettuces were even smaller. From Montevideo to Rotterdam they had an average of five lettuces a day. At Rotterdam full-sized lettuces were bought and they easily trebled their previous consumption before arriving in Southampton.

Old shirts and cigarettes were bartered for bananas over the side of the ship at St. Vincents and from here to England the birds ate four a day. The fruit was chopped into small pieces and dropped into a tin quarter-full of fresh water. It stuck to their bills and mouths, but they enjoyed it nevertheless and found it much easier to swallow if mixed with water.

Other food taken included chopped up raw cabbage, pineapple, and crushed tinned peas. Of all the food tried, lettuce was the most appreciated and was taken from the hand.

Travelling.—The geese kept in good condition throughout the voyage. They were very thin to start with but we thought they gained a little weight. They were charmingly tame, thanks to the Perrys of Fox Bay.

We brought back a cargo of seal oil which was off-loaded at Rotterdam. Here, on 24th July, they were thoroughly soaked during a day of continual rain. They were restless and noisy all that evening, so

I took them down to my cabin where they had full run of the floor and were soon preening themselves and happy. One of the male's wings started drooping during the last 48 hours and showed no signs of improvement when we arrived at Southampton on 26th July; it however made a good recovery at the Severn Wildfowl Trust.

FALKLAND FLIGHTLESS STEAMER DUCK OR "LOGGER DUCK"

(*Tachyeres brachypterus*)

Methods of Capturing Wild Birds.—Being flightless and gregarious, these birds should not be difficult to catch, but they present problems of their own. They roost at night above high water but are readily disturbed and, though they show little shyness, always keep at a safe distance. They are strong birds with powerful bills.

The following methods are known.

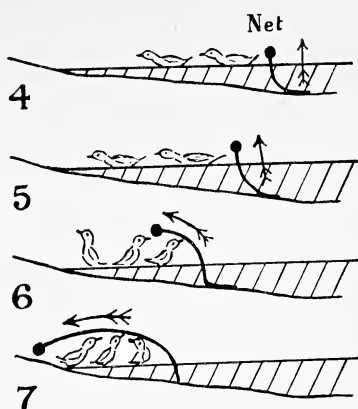
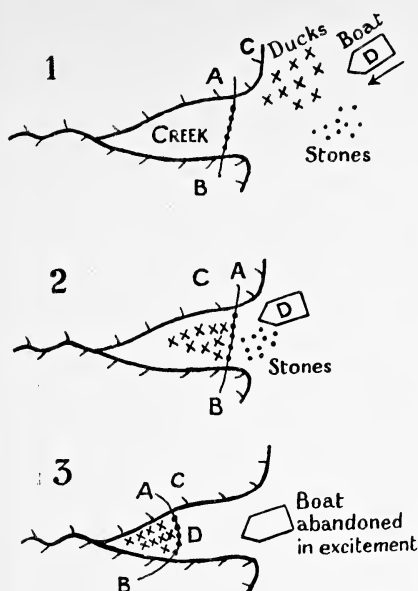
Daylight.—(1) Chasing them in calm water in a motor-boat. They can travel at some speed on the surface and almost, but not quite, become airborne. When the boat catches up they dive and alter course. If the boat is manœuvrable enough, it can zig-zag after them until they get so short of breath that they can dive no more. It is then possible to pick them out of the water.

(2) Driving them on to the land by several rowing boats converging on a narrow creek. Once on land, they are said to be helpless and easily caught.

At night.—(3) Driving them very carefully up a creek on to land by boat party, a wading party converging on them from the flanks with powerful torches and catching them by hand when on shore. This method was used in June, 1949, when we caught a pair. One of these (a female) reached the Severn Wildfowl Trust by "John Biscoe". It is not a very satisfactory method as the ducks are apt to panic and dive back under the boat and waders in shallow water.

(4) Driving them over a fishing net spread across a narrow creek, then dragging the net in behind the birds until it can be raised out of the water and dropped on top of them. This method was used in June, 1951.

With a bit of experience this method could prove very effective. We caught three at the first attempt, but had more in the net to start with. The small party swam quite unsuspectingly over the cork floats. On the second attempt nothing would induce the birds to swim over the net again in the same creek. We tried another creek and drove them successfully over the net but could not pull it in towards the shore because it became tangled among the boulders and debris. This method is therefore dependent on a muddy or sandy creek. It would be better to have a fishing net without cork floats, but these are not always easy to come by.



A and B lie flat at each end of the net. D rows a light dinghy, or better, a flat-bottomed pram. C is "runner", and directed by D; his job is to throw stones outside the ducks to keep them going in the desired direction. Carefully-thrown stones can do as effective work as a second boat.

I think these, and even Kelp Geese could be caught without much difficulty by one person, or at the most two, by choosing a dark stormy night with a strong wind blowing in from the water, and dazzling the birds with a powerful torch. I found this method very effective for catching Sheathbills (*Chionis alba*) at Signy Island, South Orkneys, for ringing. This is a small white intelligent bird, but quite helpless in absolute darkness when dazzled by a strong light. The roar of the waves drowns all sounds of approach. One of the secrets of success is to advance rapidly with the torch focussed on the bird all the time.

Travelling Boxes and Cleanliness.—One male and two females caught three days before the ship sailed were kept for most of the voyage in separate boxes of the size recommended for the Kelp Geese. The same attention to cleanliness was observed.

Food.—Each box had four feeding tins. One each for salt and fresh water, bread soaked in water and pollard mixed with bread and maize. Throughout the voyage they showed a preference for bread soaked in fresh water, rarely touching the pollard and maize unless hungry. Banana, lettuce, and cabbage were ignored. The male would eat cooked fish when mixed with bread, though he hardly ever touched raw chopped flying-fish that landed on board overnight. They drank from the fresh water tin and would sometimes attempt to bathe by ducking their heads into it and throwing the water back, but never seemed to do more than dabble their bills in the salt water. This preference for fresh water is of interest and is discussed later. They

started feeding between 7 and 10 days after capture. Each bird would eat an average of 1 to $1\frac{1}{2}$ lb. of soaked bread daily.

Travelling.—The male settled down better than the two females, but they were always restless and trying to get out when the sack curtain was up. One of the females was so determined in her efforts that she succeeded in loosening a slat and escaped. She was last seen swimming in the direction of land approximately 105 miles off the Brazilian coast south of Rio de Janeiro. If an obscure species of duck is described by Brazilian ornithologists, it may prove to be our "Logger duck" which was given a good send-off towards the coast by "Biscoe's" wash.

The soaking that the birds had at Rotterdam probably accelerated the lung condition of the remaining female. On arrival at Southampton she looked very ill and did not survive the car journey to Slimbridge. Post-mortem and microscopic examination revealed extensive lesions of mycotic disease of the air sacs. Culture of these grew a pure growth of *Aspergillus fumigatus*.

MYCOSIS AND FOODSTUFFS

Ten samples of mould from slobbered bread, maize, and other foodstuffs given to the birds were taken by sterile swab and cultured on Sabouraud's media. Nine different moulds were isolated but no *Aspergillus fumigatus*. Nor were any considered pathogenic; yet the female Steamer duck died of Aspergillosis on arrival in spite of precautions. Perhaps infected foodstuffs are not such an important factor as lowered resistance. A susceptible bird in poor condition might pick up the *Aspergillus fumigatus* spores from the atmosphere and succumb to the disease whatever precautions were taken. It would however be unwise to jump to any conclusions without a more thorough investigation than could be carried out on this occasion. No prophylactic potassium iodide was given (Yealland 1949).

FRESH VERSUS SALT WATER

A definite preference for fresh water was noted in both the Kelp Geese and Steamer Ducks. The position of the water tins was changed every day, yet they always chose the fresh and did little but dabble their bills in the salt. It is possible that they took in a small amount of salt water on these occasions, but it was insignificant compared with the fresh. They also preferred bread soaked in fresh water. In the wild state these species are almost entirely maritime. Close field study may throw some light on this unexpected preference. It is possible that these, and other maritime ducks, spend much of their time in creeks into which fresh water is running. The change from the marine life of the wild state to fresh water life of captivity may not be quite such a physiological upheaval as might at first be suspected. However, even

if they do drink fresh water only, they must take in a fair quantity of salt when they feed from the shore. This lack may have to be compensated for in captivity.

ACKNOWLEDGMENTS

I would like to express my thanks to His Excellency the Governor of the Falkland Islands, Sir Miles Clifford, for his interest and for permission to take the birds out of the Falklands : to Captain Johnston of the "John Biscoe", and all on board who helped during the long voyage back : to Mr. E. M. Cawkell and Mr. Jack Bowles who helped in many practical ways in the Falklands, and to Dr. G. Smith of the London School of Hygiene and Tropical Medicine for kindly identifying the moulds.

SUMMARY

A pair of hand-reared Falkland Kelp Geese and three Falkland Flightless Steamer Ducks were taken back to England on board s/v "John Biscoe".

During the 35 days voyage the Kelp Geese were fed on bread soaked in water supplemented by fresh lettuce and bananas.

The Steamer Ducks preferred soaked bread to anything else offered.

One Steamer Duck escaped when the ship was south of Rio de Janeiro.

Methods of catching Steamer Ducks are described.

Cultures made from moulds on foodstuffs grew no pathogenic fungi, yet one bird died of Aspergillosis on arrival.

The preference that both these maritime species showed for fresh rather than salt water is discussed.

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FIRST BREEDING OF THE MANYCOLOUR PARRAKEET IN THE U.S.A.

By DAVID M. WEST (Montebello, California, U.S.A.)

Although it was possible to import psittacine birds into the U.S.A. during the 1930's, apparently only a very few Manycolours were ever imported. Probably many aviculturists failed to make the effort, due to the bad reputation Manycolours had gained for being delicate and difficult to keep in good condition in captivity.

In the U.S. the only living Manycolour for many years was in the collection of the late I. D. Putnam in San Diego. This hen reared hybrid young with a male Stanley while in the Putnam collection. The young bird from this union was a female, and I remember it as a rather splotchy and washed out reddish coloured bird about intermediate in size between the two parents.

If I am not mistaken, Mr. Putnam had secured a pair of Manycolours about 1938. At the time he said that there were only about two pairs imported, and that he could secure only one of the two pairs. His pair eventually nested and had fertile eggs, but unfortunately the male died during incubation and the hen deserted the eggs, thus ending his experience with the species. He once told me it was the greatest avicultural disappointment he ever experienced.

In 1950 we were fortunate enough to secure from a zoo two imported pairs and an extra hen of this species. These birds arrived in the U.S. during July of 1950, and were released from their quarantine period in late 1950. By October the Korean war effort had resulted in the mobilization of many Reservists, and in October I was stationed in San Francisco some 450 miles from Los Angeles. On my first free week-end I drove down to Los Angeles to see these new, long-hoped-for additions. They really were in fine condition, and I was extremely pleased with them.

In 1951 the only "success" was with the odd hen bird which laid and incubated five eggs. She was later mated to a male Red Rump, who suddenly turned on her and literally ripped her to pieces. Although both mated pairs were seen to mate they never appeared too serious in their intentions, and no results were obtained in 1951.

In 1952, one pair nested very early in February. I think they had visited the nest box almost constantly for some fifty days before this hen actually began to lay. Naturally I was very excited about this chance to breed *P. multicolor* for the first time in America.

At this point our narrative takes a dismal turn, and we have only a failure to contemplate. After about two weeks of incubation I was awakened one night to hear the birds all calling and flying about in a night fright, caused by a cat on the aviaries. I turned on the lights

in the yard and soon all the birds had quietened down, but unfortunately the female Manycolour had left the nest and would not return. Finally, in desperation I took her six eggs (of which five were fertile), and they were driven over to a friend's house and placed under Shell Parrakeets. With an extremely heavy heart I finally turned in about four in the morning—wondering why I ever grew out of the Pigeon-raising stage in avicultural development.

Subsequently all five young hatched, but unfortunately they all died in a few days, despite the fact they were hand-fed. So, to date, the closest to a successful breeding in the U.S. were five dead chicks—and a very frustrated aviculturist. Several weeks following these unhappy and discouraging events "Lady Luck" began to shine. Both pairs of Manycolours got busy and started to get their nests ready for families. The rather odd thing was that both pairs actually started to nest on the same day—10th March. Here the similarity ended for the first pair (that had the abortive first nest) were models of perfection with the hen sitting very close and the male attentive. The second pair were quite casual about the entire affair and this hen spent more time sitting in her doorway than on her eggs. I never really had any faith in this second pair, for the hen was very nervous and would leave her nest every time she heard a noise. Later we shall see that she surprised me.

Another great difference was in the pre-nesting habits of the two pairs. The first pair spent several weeks getting their nest ready while the second pair spent only a few hours. Already mentioned was the difference between the two hens as regards their nests—and sticking close to their eggs. Both pairs hatched simultaneously and proved to be very good parents. They ate great amounts of bread and green seeding grasses. After about the seventh day the females spent considerable time away from their nests during the day. In both cases the males fed both their hens and also entered the nests and fed the young directly. Both males were seen to enter the nests the second day following the hatching of the young—presumably to feed.

Food mixtures included a standard mixture of seed composed of one part millet, one part oat groats, two parts canary, and all the sunflower they would use. To this was added one-quarter apple and one-quarter orange daily, plus a liberal amount of soaked (water) bread and green seeding grasses. The nest-boxes in both cases were hung under a shelter, but about six inches from the edge of the shelter. Both the boxes were of a size commonly used for Grass (*Neophema*) Parrakeets and *Agapornis* in the U.S. Wood shavings were used to fill the boxes. When the boxes were cleaned and readied for the breeding season we used this method: (1) filled the box *half full* of woodshavings, and (2) poured water on them. (3) Following this we added dry shavings, filling the box up to the nesting entrance. This

allows the moisture gradually to seep up to the eggs, and has always worked very satisfactorily. The important thing to remember in doing this is that it is done about forty-five days in advance of the hanging of the box. Naturally if you did this just a day or so in advance of the hanging of the box, you might have a nest much too cold and damp.

The aviary sizes were different in these two nestings. One pair were in a cage 16 feet long, while the other pair were in a cage 12 feet long. Both pens were three feet wide with good shelters, and were in the sun for a period every day. During the time the birds were nesting, Southern California had some very unusual rains, including one storm that dropped some seven inches of rain in one day. Even so, the Manycolours managed to look chipper throughout the storm.

The pair that took their procreational activities so lightly deserted their youngsters about the fourteenth day. I believe that the trouble was that the male had mated to the hen again and subsequently they left their three babies. Oddly, they made no attempt to nest again—and dropped into a moult.

The first pair proceeded right along with their family, and consumed great quantities of feed. They ate very large amounts of bread, and little wonder when we saw the final result—six youngsters ! It is odd, but we could never hear the young being fed—they certainly were very quiet babies.

The Manycoloured is rather widely distributed over Central Australia and Southern Queensland to Victoria, and also Western Australia. In Australia it apparently is a rather common bird, both in the wild state and also in the bird shops, etc. I have seen some references to the fact that at certain times of the year they are for sale for as little as 5s. in Australia.

The six youngsters all looked very nice, and were relatively quiet and steady. They were easily sexed the day they left the nest, for the four young males were paler editions of the father, and the two young hens closely resembled their dusky mother. Some of the young males were brighter than others.

The six youngsters and their parents really do make a very nice showing. We will mate the youngsters up and probably split up the other adult pair that seemed to be so nervous.

Though their tails were rather short upon leaving the nest, they grew very rapidly, and in about three weeks their tails were as long as the parents. The young are wonderfully steady and quiet, and appear to be even more tame than their parents.

Just why one finds so many printed references to their supposedly being delicate, I do not know. I rather imagine that they are very delicate when first trapped, and are hardy when once acclimatized. I have seen printed statements to this effect.

Judging from various articles in the older issues of the *Avicultural Magazine*, the Manycolour has long been fairly easily and frequently bred in Europe.

* * *

OFFICERS FOR 1953

A Council Meeting was held on 12th November, 1952, in the Council Room, Zoological Society of London.

There were the following retirements and appointments :—

Council : Mr. B. H. Dulanty, Mr. D. H. S. Risdon, and Mr. Peter Scott retired by seniority : the Rt. Hon. the Viscount Chaplin withdrew.

Captain A. Clarence, Mr. K. A. Norris, Mr. S. Porter, and Mr. R. C. J. Sawyer were elected to fill the vacancies.

ARTHUR A. PRESTWICH,
Hon. Secretary

* * *

LONDON ZOO NOTES

By JOHN YEALLAND

A fine Monkey-eating Eagle (*Pithecophaga jefferyi*) has been sent as a present from Mr. Alex Lawrance who caught it in the Philippine Islands. It is hoped that this bird is a male, for the female presented by Mr. Whitley in 1939 laid an egg a few years ago and she seemed pleased to see another of her own kind. Other presentations include a Virginian Cardinal (*Cardinalis cardinalis*) ; a Red-billed Pintail (*Anas erythrorhyncha*) and a Black Kite (*Milvus migrans*).

A Blue-winged Goose (*Cyanochen cyanoptera*) ; five East African Bare-throated Francolins (*Pternistis leucoscepus infuscatus*) ; an Olive Sun-bird (*Cyanomitra olivacea*), new to the collection ; and a Cape Dove (*Æna capensis*) were received in exchange. A Rufous-necked Weaver has been bred at the Bird House.

The King Penguin chick is now twelve weeks old and weighs 25 pounds. The father died from pneumonia a month ago ; he was otherwise in perfect condition and weighed 36 lb. 10 oz., so there was no evidence that he suffered as a result of his onerous task. The father of the first Edinburgh chick reared in 1919, monopolized the egg and chick as this one did, and he also died, evidently from malnutrition, for he weighed only 25 pounds.

Three pairs of Black-footed Penguins are now nesting.

* * *

BRITISH AVICULTURISTS' CLUB

The thirty-fifth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 12th November, 1952, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss P. Barclay-Smith, H.G. the Duke of Bedford, Miss K. Bonner, Mrs. V. M. Bourne, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, T. Crewes, A. H. D'Aeth, Mrs. I. Darnton, W. T. Dring, O. E. Dunmore, A. Ezra (Patron), J. C. Garratt, Miss D. Gask, F. Grant, H. J. Harman, Dr. E. Hindle, G. T. Iles, Miss E. M. Knobel (Club Hostess), Miss M. H. Knobel-Harman, D. R. Lovell, P. H. Maxwell, G. S. Mottershead, S. Murray, K. A. Norris, A. A. Prestwich, J. H. Reay, D. M. Reid-Henry, D. H. S. Risdon, R. C. J. Sawyer, J. Seago, R. Stone, R. A. Taylor, E. N. T. Vane, C. H. Wastell, H. Wilmot, J. J. Yealland.

Guests : M. Allen, S. Allen, J. Bailey, R. Bloom, Miss K. Dring, T. W. Dring, Mrs. W. T. Dring, Mrs. J. C. Garratt, Mrs. F. Grant, Miss P. A. Lawford, Mrs. R. Maurice, Mrs. S. Murray, Mrs. J. H. Reay, Mrs. D. Seth-Smith, Mrs. R. A. Taylor, Miss M. White, Mrs. H. Wilmot, A. J. Woods.

Members of the Club, 40 ; guests, 18 ; total, 58.

K. A. Norris showed a further selection of his hand-coloured slides, " Birds—Here, There, and Everywhere ". This series dealt mainly with the birds seen in and about the speaker's Surrey garden, and birds observed in the Welsh hills ; together with several excellent photographs of Badgers and their young. The slides, about one hundred, were of the very high standard associated with Norris and were obviously fully appreciated by the large audience.

The next meeting of the Club is on **14th, January, 1953.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

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REVIEWS

BREEDING BIRDS OF KASHMIR. By R. S. P. BATES and E. H. N. LOWTHER. Illustrated, with 151 photographs by the authors, and 5 coloured plates by Mrs. D. V. COWEN. Oxford University Press, 1952. 38s. net.

This book deals with that part of Kashmir which lies to the south of the Karakoram range, and is on the border between the Palaearctic and Indian Zoological regions. Though most of the birds belong to the former region, and some are very similar to European species, there are a few purely Indian which extend into the area up the valley of the Jhelum River. Most of the birds are residents, but many, too, are summer visitors, which after the breeding season descend to the foothills of the Himalayas and the plains of India. Quite a number of the species are the same as those found about the hill stations in the Western Himalayas, such as the Black Bulbul, White-cheeked Bulbul, Redstarts, and Rock Thrushes as well as several of Doves and the Chukar; of the last-named bird Colonel Delmé Radcliffe had a delightfully tame example from Kashmir, which followed him in the streets of Bombay, and when he was at home he took it to Switzerland, much to the amusement of people taking part in winter sports.

Both the authors are well known photographers of Indian birds, and have paid many visits to Kashmir for the purpose of studying the birds and taking pictures of both them and their nests. Their notes on habits are full of interest, and add considerably to our knowledge of the birds of that part of the world. These observations do not always agree with statements in the standard work on Indian birds, but here we have first-hand observations, and not what an author has written from the notes of others.

The photographs are of a high standard, and the coloured plates should be helpful in identifying species.

N. K.

RECORDS OF PARROTS BRED IN CAPTIVITY. Part VI : GRASS PARRAKEETS. By ARTHUR A. PRESTWICH. London, 1952. Price 7s. 6d.

This sixth volume of the valuable series deals with the Grass Parrakeets and comprises 24 species. A full account of the breeding of Budgerigars and the many different colour varieties achieved is of particular interest.

P. B-S.

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BIRDS OF BRITAIN CALENDAR. Country Life. Price 5s. 6d.
(including tax) ; posted abroad, 5s.

This excellent calendar (measuring 10 in. by 8½ in.) contains twelve of Eric Hosking's superb photographs, one for each month of the year, with short descriptive text. The reproductions well maintain the high standard that is expected of *Country Life* publications and the calendar should prove a most useful and attractive Christmas or New Year present.

P. B-S.

* * *

NOTES

MY PESQUET'S PARROT (*Psittichas fulgidus*).

I do not propose giving a detailed description of this Parrot, as there is a coloured plate by Roland Green of the bird then living at Regent's Park, and an account by F. Shaw Mayer of the species in its natural habitat, New Guinea, in the *AVICULTURAL MAGAZINE*, July, 1936.

There is a mounted specimen in the Bird Gallery, Natural History Museum, and a specimen can be seen in the natural history collection of the Birmingham City Museum.

My present bird was collected by Shaw Mayer and brought home with his collection by Frost in July this year. It is fed on bananas, apples, plums, grapes ; it also likes some carrots and boiled potato occasionally. Each morning with its fruit it has some "Sunnybix" and sponge roll, over which some condensed milk is poured. Owing to the nature of the food its excreta is rather copious, necessitating frequent cleaning of the cage and perches, even more often than with a Lory.

The bird is sprayed with a flower spray, as are all the psittacines in the Parrot House at Whipsnade, and occasionally I give it a wipe with a damp cloth.

The voice is really most remarkable. The Duke of Bedford wrote of a bird in his collection : "Her voice was awful and suggested a mixture of a rattle, a klaxon horn, and the yell of a Banksian Cockatoo," a pretty fair description.

P. H. MAXWELL.

* * *

CORRESPONDENCE

POLYNEURITIS, CONJUNCTIVITIS AND COCCIDIOSIS IN BIRDS

Those who imported Australian Parrakeets in the days before the ban may recall that on occasion some of them—Kings, Crimson-winged, Barraband's, and Black-tailed—arrived in apparently good health but for being paralysed in the legs. Broadtails and others were not affected in this way. Some adult Harlequin Ducks caught in Iceland during the Spring of 1951, all developed paralysis of the legs within a few weeks of being brought back, but Long-tailed and Barrow's Golden-eye whose summer diet must be much the same, remained unaffected.

The Harlequin Ducks readily responded to treatment with dried yeast in the food, making complete recoveries, and it would appear that the paralysed Parrakeets were also suffering from a vitamin B deficiency. It is strange that some—not particularly specialized feeders—should be so sensitive to a vitamin B deficiency while others are not.

An analogous case is that of the contagious conjunctivitis to which the Grass Parrakeets, Kings, Crimson-winged, Barraband's, and Black-tailed seem the most susceptible, the Broadtails and Budgerigars much less so, and the Ring-necked, Alexandrine, and Plum-headed, which are sometimes imported in conditions

under which this disease might be expected to develop, remain almost if not quite immune.

It is, by the way, an excellent thing that at last this disease is to be investigated on really scientific lines, for conjunctival inflammation from whatever cause presents such similar symptoms that diagnosis from appearances alone must sometimes be erroneous.

For the same reason one wonders whether there is such widespread coccidiosis among parakeets. No pathologist would be rash enough to diagnose this disease by appearances alone and without a careful examination of the faeces, so diagnosis by those with no pathological knowledge must be largely in the nature of guesswork. Coccidiosis is a disease associated with the intensive rearing and keeping of ground or water birds, for its spread is due to contamination of food and water by infected faeces and so the chance of an outbreak among parakeets kept in pairs in clean aviaries must be small.

Blount (*Diseases of Poultry*, p. 443) says: "In general, the different species of coccidia are strictly host specific, and the coccidia of the chicken are uninfective to other poultry." Which of the many species of coccidia is so pathogenic to parakeets?

J. J. YEALLAND.

ZOOLOGICAL SOCIETY OF LONDON,
REGENT'S PARK, LONDON, N.W. 8.

Replying to the correspondence evoked by my "Psittacorial Notes", first with regard to coccidiosis. I am sorry that the Duke of Bedford understood me to suggest that Sulphamezathine was worse than useless for this scourge, on the contrary, it has been most successful in many instances, and my concluding remarks on the subject were to the effect that, whenever coccidiosis was suspected I reverted to the immediate use of the drug. I emphasized that correct diagnosis was essential, but that the expense and waste of time of microscopical examination in the laboratory was worse than useless if, as I had been informed, it was possible, if unlikely, to obtain a negative result during a certain stage of the development of the disease.

As regards eye disease, Dr. Lake's offer of assistance was most welcome and constructive, and I know that some have already taken advantage of it and further experiments are now being carried out by the doctor. The following note may clarify my suggestion that careless handling was a contributory cause in these cases. In a shipment of birds which travelled for eight weeks the losses were very high and many of the survivors suffered from eye disease, although all were supposed to be in perfect health when dispatched. Again in a consignment sent by air there were several losses and many specimens were badly infected on arrival, which ended fatally in many cases, although all were reputed to be in perfect health when dispatched only eight days previously. This I find hard to believe, and my suggestion was that through rough handling—parakeets are invariably grabbed self-defensively behind the neck without ceremony—when being changed from cage to cage the eyes frequently become covered with grit and dirt which must be very painful to the bird. In trying to effect some relief the victim rubs its eye along the perch which is generally fouled whilst travelling. Under such conditions, if only one bird had a touch of conjunctivitis, it is going to spread rapidly and aggravate any unhealthy condition in its incipient stage. Observation of any affected bird will quickly make my meaning clear, its persistent and vigorous rubbing of both eyes along the perch is very apparent. I can recall suffering one summer from a very infectious form of conjunctivitis, and although the doctors were probably right in telling me, as a small boy, that there was nothing in my eye, and on no account was I to rub it, I was never convinced that they knew what they were talking about, and in view of the very contagious nature of this epidemic I can well imagine that if we had all used the same handkerchiefs or towels to ease the pain in our eyes, just as the birds use the same perch whilst travelling, the results would have been equally disastrous and broadcast.

E. N. T. VANE.

FAIRACRE,
BALLINGER,
BUCKS.

OF KINGS, SPLENDIDS AND—EYE DISEASE

The Honorary Secretary in his records of Parrots and Parrot-like birds bred in captivity, gives 1948 as the last recorded date for the breeding of the Australian King in England. Very few have been successful, but a pair imported in 1951 reared two exceptionally fine young here this season with no fuss or bother whatever. Then unfortunately one day in the early autumn, the adult hen seemed not quite right. She responded well to heat and sulphamezanthine, but suddenly fell away, and a *post mortem* examination revealed intestinal catarrh as the cause of death.

Splendids have proved ridiculously easy to breed, two hens rearing seventeen young in the season. The former tendency for both young and adult to crack their skulls against the roof netting appears to have been bred out of the modern bird. Both hens carried green leaf when sitting, one completely carpeting the bed of her nest.

As the Duke of Bedford once pointed out, there are certainly two forms of eye disease. A young Hooded cock imported during the summer arrived with the acute form—considerable swelling of the lids accompanied by a watery discharge from the eye itself. It responded successfully, though considerably more slowly, to the treatment used by me with imported Splendids last season which had, what the Duke has described as, the chronic form of the disease.

T. R. HOLMES WATKINS.

ORONSAY,
THE ELLIPSE,
GRIFFITHSTOWN, MON.

YOUNG RED-LEGGED PARTRIDGES

May I express my indebtedness to the many who have offered homes to the Red-legged Partridges. I regret I was unable to reply personally to every letter and hope that the writers of those left unanswered will accept this apology in lieu.

DEREK GOODWIN.

"TOFTS,"
MONKS LANE,
VIRGINIA WATER, SURREY.

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- Great Britain . *British Birds, Cage Birds, The Ibis, Our Zoo News*
 . (Chester Zoological Gardens).
- Australia . *Australian Aviculture* (official organ of the Avicultural
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 of South Australia).
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 1952 BLAAUW, A. F. H., O.B.E. ; "de Wissel," Rysbergen (N.-B.), Holland.
 1929 BLACKBURN, FRANK ; Lower Hall, Kirkheaton, Huddersfield.
 1951 BLACKER, R. W. ; North Grange, Skirlaugh, Hull, Yorks.
 1937 BLAND, W. P. ; 3 Station Approach, Meols, Hoylake, Cheshire.
 1949 BLOCK, S. ; Rainbow Aviaries, 31 Dundurn Place, Winnipeg, Manitoba, Canada.
 1951 BLOOM, R. ; Hall Common, Ludham, Norfolk.
 1946 BLYTHE, Hylton ; 5 The Avenue, Flitwick, Beds.
 1950 BOBRINSKOY, Count, M.A., M.B.O.U. ; 7 Penywern Road, London, S.W. 5.
 1949 BONNER, Miss Kay ; 61 Chase Road, Oakwood, N. 14.
 1940 BONNY, J. W. ; Springfield, 166 Whitegate Drive, Blackpool, Lancs.
 1925 BORBIDGE, HARRY M. ; Innisfail, Sunbury, Victoria, Australia.
 1911 BOURKE, Hon. Mrs. G. ; Rotherend, Rotherfield Road, Henley-on-Thames.
 1951 BOURNE, Mrs. V. M. ; 78 Idmiston Road, West Norwood, S.E. 27.
 1948 BOWLES, D., B.Sc., F.Z.S. ; Zoological Park, Murrayfield, Edinburgh 12.
 1950 BRADDICK, B. ; 9 Mayfield Terrace, Moss Road, Askern, Doncaster.
 1947 BRADFORD, P. A. ; King's Arms, High Street, Wandsworth, S.W. 18.
 1951 BRADLEY, R. H. ; 13 Waubesa Street, Madison, Wisconsin, U.S.A.
 1950 BRAIN, William, F.Z.S. ; Haynes, 30 Rushworth Road, Reigate, Surrey.
 1953 BRATLEY, C. H. ; 14 The Ridge, Woodlands, Nr. Doncaster.

- 1951 BRATLEY, G. W. ; 39 Westfield Avenue, Pontefract, Yorks.
 1950 BREESE, PAUL L. ; Honolulu Zoo, Kapiolani Park, Honolulu 15, Territory of Hawaii.
 1949 BROCK, DONALD S. ; 5840 Seminary Court, Oakland 5, California, U.S.A.
 1949 BRONSON, J. L. ; 617 West 143 Street, New York 31, N.Y., U.S.A.
 1933 BROOKES, Miss F. C. ; Massam Hall, Old Leake, Boston, Lincs.
 1952 BROOKFIELD, F. ; 39 Wincobank Avenue, Shiregreen, Sheffield, Yorks.
 1938 BROUGHTON, Major the Hon. HENRY, F.Z.S. ; Bakenham House, Englefield Green, Surrey.
 1931 BROWN, E. J. ; 29 Dean Road, Bitterne, Southampton.
 1946 BROWN, RALPH ; The Pleasants, Aberdour, Fife, Scotland.
 1950 BROWN, Dr. REGINALD B. ; 6 Barker Street, Newcastle, N.S.W., Australia.
 1924 BROWN, W. FERRIER ; 85 Yew Tree Road, Southborough, Kent.
 1952 BROWN, W. G. ; 8 Carrick Drive, North Mount Vernon, Glasgow, E. 2.
 1947 BRUYNEEL, J. ; Domaine de Steenokkerzeel, Régie, Belgium.
 1942 BRYCE, Mrs. PETER COOPER ; Florestal, Hope Ranch, Santa Barbara, Calif., U.S.A.
 1928 BUCHANAN, A. ; Viewbank, 33 Townhill Road, Dunfermline.
 1938 BUCKINGHAM JONES, C., LL.M. ; Dibrugarh, Assam, India.
 1945 BURGIS, BRIAN ; "Eatonvale," Eatonvale Road, Tinana, via Maryborough, Queensland, Australia.
 1952 BURTON, M., D.Sc. ; British Museum (Natural History), Cromwell Road, S.W. 7.
 1947 *BUTE, The Most Hon. the Marquess of, M.B.O.U. ; Kames Castle, Isle of Bute, Scotland.
 1942 BUXTON, J. LEAVESLEY, F.Z.S. ; Brightlea, 227 Streetsbrook Road, Solihull, Birmingham.
- 1950 CALLEAR, W. ; 40 Portland Road, Oxford.
 1951 CAMPBELL, G. S. ; 137 Shirley Road, East Croydon.
 1933 CAMPEY, A. D. ; 117 Grovehill Road, Beverley, Yorks.
 1918 CARR, PERCY ; Ormond Lodge, Newbold-on-Stour, Nr. Stratford-on-Avon.
 1952 CARR, W. H. ; Murray Lodge, Newmarket, Suffolk.
 1952 CARSEY, L. W. ; 65 West Stratford Avenue, Salt Lake City, Utah, U.S.A.
 1952 CARTHEW, W. R. ; P.O. Box 49, Vereeniging, South Africa.
 1950 CARTWRIGHT, K. G. ; "The Gables," 10 Brick-Kiln Street, Quarry Bank, Nr. Brierley Hill, S. Staffs.
 1952 CAULKINS, D. P. ; c/o Bankers Trust Co., 16 Wall Street, New York 15, N.Y., U.S.A.
 1950 CHADWICK, Burnard ; Longsight Lodge, Redgate Lane, Manchester 12.
 1932* CHAPLIN, The Right Hon. the Viscount, F.L.S. F.Z.S., M.B.O.U., ; The Zoological Society of London, Regent's Park, N.W. 8.
 1899**CHAWNER, Miss E. F., F.Z.S. ; Leckford Abbas, Stockbridge, Hants.
 1951 CHEESMAN, M. R. ; 4888 South 13th East Street, Salt Lake City 7, Utah, U.S.A.
 1930 CHICHESTER, Mrs. H. G. ; Galgorm Castle, Ballymena, Co. Antrim, N. Ireland.
 1914 CHRISTIE, Mrs. G. ; Kellas, By Elgin, Morayshire.
 1945 CLARENCE, Capt. A. A. ; Nunton House, Nr. Salisbury.
 1949 CLARK, G. T., "Maidsmere," Finstall, Bromsgrove, Worcs.
 1942 CLARK, Mrs. G. T., F.Z.S. ; "Maidsmere," Finstall, Bromsgrove, Worcs.

- 1951 CLARK, J. A. ; 106 Derby Road, Spondon, nr. Derby, Derbyshire.
 1953 CLAYTON, J. C. ; 127 Egerton Street, Farnworth, Nr. Bolton, Lancs.
 1952 CLAYTON, S. ; "Camla," 11 Duchess Drive, Newmarket, Suffolk.
 1950 CLAYTON, T. L. ; 75 Park Road, Hampton Hill, Middx.
 1938 CLEMENTS, O. E., L.D.S., R.C.S.(Eng.) ; 1 Bayswater Road, Highlands, Salisbury, Southern Rhodesia.
 1949 CLEMITSON, J. W. ; 25 St. Paul's Gardens, Whitley Bay, Northumberland.
 1951 COLLINS, L. G. ; 7 Bycullah Road, Enfield.
 1950 COOMBS, E. W., F.Z.S. ; "The Woodlands," Walderslade Road, Nr. Chatham, Kent.
 1952 COOPER, J. T. ; Hall Farm, Outwell, Nr. Wisbech.
 1951 CORBETT, R. C. U. ; Itchen Abbas Cottage, nr. Winchester, Hants.
 1942 CORWIN, SAUL C. ; 165 Broadway, New York 6, New York, U.S.A.
 1950 COWARD, D. M. ; "Karibu," Longfellow Avenue, Wellsway, Bath.
 1925 COWLEY, H. ; The Manor House, Bubbenhall, Nr. Coventry.
 1947 COWLESHAW, A. G. ; The Chalet, 35 Aylesbury Street, Bletchley, Bucks.
 1933 COX, Mrs. B., F.Z.S. ; Barncrosh, Castle Douglas, Scotland.
 1952 COYNE, Capt. S. F. ; 2nd Bn. The Sherwood Foresters, Meanee Barracks, Colchester, Essex.
 1951 CRAGGS, L. ; 15 Henderson Street, Darlington, Co. Durham.
 1946 CREWES, T. ; "Walton Croft," Manor Way, Beckenham, Kent.
 1929 CROFTS, ROBERT T. ; 85 Reeves Avenue, Cross Heath, Newcastle, Staffs.
 1949 CRONE, G. H. ; "Vyverhof," Lage Vuursche, Holland.
 1948 CUMMINGS, W. D. ; Danescombe, Calstock, Cornwall.
 1952 CUNNINGHAM, A. ; 84 Hamilton Road, East Finchley, N. 2.
 1928 CURA, L., F.Z.S. ; Water End, Hemel Hempstead, Herts.
 1952 CURTO, F. ; North Side Conservatory-Aviary, West Park, Pittsburgh 12, Pennsylvania, U.S.A.
- 1939 DABNER, P. L. ; 56 Arkwright Road, Sanderstead, Surrey.
 1951 D'AETH, A. H., F.Z.S. ; 45 Ormonde Terrace, Regent's Park, N.W. 8.
 1946 DALBORG-JOHANSEN, J. ; Dyr-laage, Graabrødreplads 6, Odense, Denmark.
 1953 DALE, S. J. A. ; Wagg Street, Congleton, Cheshire.
 1949 DALGETY, C. T., M.B.O.U. ; Radnall Mill, Baldock, Herts.
 1937 DALLOW, F., M.B.E. ; 13 Hillingdon Road, Stretford, Manchester.
 1951 DAMS, G., "Blatherwick," London Road, Raunds, Northants.
 1948 DANHIER, M. F. ; 182 Chaussee de Charleroi, Brussels, Belgium.
 1951 DARGE, J. A. ; 35 Longman Road, Inverness.
 1950 DARMAN, H. J., F.Z.S., F.R.H.S. ; 44 Fraser Road, Walthamstow, London, E. 17.
 1932 DARNTON, Mrs. I. ; Sissinghurst Court, Cranbrook, Kent.
 1952 DAVIES, B. C. ; "Belgrano," Medlock Road, Woodhouses, Ashton-under-Lyne, Lancs.
 1927 DAVIS, Sir GODFREY, I.C.S., F.Z.S. ; Beresfords, Boughton Monchelsea, Nr. Maidstone, Kent.
 1941 DAVIS, H. H. ; Little Stoke, Patchway, Bristol.
 1934 DAVIS, MALCOLM ; 904 11th Street S.E., Washington 3, D.C., U.S.A.
 1950 DAY, J. N. E., M.Sc., Ph.D. ; 18 Home Wood Road, St. Albans, Herts.
 1952 DEACON, D. R. ; 41 Hilders Road, Western Park, Leicester.
 1951 DEAN, A. W. S. ; Sudbrook Manor, Sudbrook, Grantham.
 1952 DEANS, G. ; 3 New Edinburgh Road, Dalkeith, Midlothian.

- 1949 DE COOMAN, Rev. H. J. J. ; 1 Pontstraat, St. Martens-Leerne, Oost Vlaanderen, Belgium.
- 1917 DECOUX, A. ; G ry, Aix-sur-Vienne, Haute-Vienne, France.
- 1948 DE GOEDEREN, G. ; Orteliuskade 74, Amsterdam, Holland.
- 1950 DE JONG, L. ; Plantage Kerklaan 40, Amsterdam, Holland.
- 1903 DENNIS, Mrs. H. E. ; Lower Nash, Nutbourne, Pulborough, Sussex.
- 1924 DENNY, Mrs. H., C.B.E., J.P. ; The Chantry, Horsham, Sussex.
- 1930 DE PASS, GERALD V., F.Z.S. ; The Old Kennels, Satwell, Nr. Henley-on-Thames.
- 1932 DE PLEDGE, Miss BERYL ISABEL, F.Z.S. ; (Address unknown).
- 1948 DESAI, PRADYUMAN K. ; Takhteshwar Plot, Bhavnagar, Saurashtra, India.
- 1951 DEVROEDE, R. ; 41 Rue Damseaux, Gembloux, Belgium.
- 1945 DEXTER, J. E., M.M. ; Lamorna, Ongar Road, Pilgrims Hatch, Nr. Brentwood, Essex.
- 1951 DIEDRICH, W. W. ; Dierenpark Wassenaar, Rijksweg 667, Wassenaar, Holland.
- 1951 DIRE, W. W. ; 127 N. Humphrey, Oak Park, Ill., U.S.A.
- 1948 DOLBEY, Miss VIRGINIA, F.Z.S. ; 37 Grosvenor Square, W. 1.
- 1949 DOMINICK, GEORGE D. ; 13 Nokomis Circle, Knoxville 16, Tennessee, U.S.A.
- 1924 *DOOLY, THOMAS L. S. ; Whimbrel, Kirklake Road, Formby, Nr. Liverpool.
- 1953 DOSSCHE, A. ; 2 Rue des Architectes, Mt. St. Amand, Belgium.
- 1951 DOUGHTY, E. C. ; 53 Bath Street, Market Harborough, Leicester.
- 1947 DOVER, G. W. ; 12 Trinity Terrace, Abergavenny, Mon.
- 1947 DRING, W. T., F.Z.S. ; 12 East Park Street, Chatteris, Cambs.
- 1947 DUFOUR, Colonel JOHN ; 167 Avenue de Belgique, Antwerp, Belgium.
- 1939 DULANTY, BRIAN H., F.Z.S. ; Fisheries Cottage, Chorley Wood, Herts.
- 1952 DUNCAN, P. ; 5 Viewfield Place, Perth, Scotland.
- 1922 DUNMORE, OSCAR E., F.Z.S. ; 22 Kingsway Road, Leicester.
- 1930 DUNSTER, Capt. J. E. ; Bucklebury Village, Nr Reading, Berks.
- 1927 DUYZEND, P. ; Koppelweg 151, Huize, "Casarca," Zeist, Holland.
- 1951 EASTICK, D. M. ; The Mill House, Sonning, Berks.
- 1936 EAVES, W. L., F.Z.S. ; 581 Warwick Road, Solihull, Birmingham.
- 1953 EDEN, G. R. ; "Silver Birches," Temple Wood Lane, Farnham Common, Slough, Bucks.
- 1951 EDWARDS, S. ; 180 Crescent Road, Coalville, nr. Leicester.
- 1951 EGGLESTON, J. W. ; 38 Lingey Close, Dalston, Carlisle, Cumberland.
- 1949 ELEEN, T. ; 29 Desborough Crescent, West Derby, Liverpool.
- 1926 ELWES, Mrs. ROBERT ; Little Congham, King's Lynn, Norfolk.
- 1949 ENEHJELM, C. AF, C.M.Z.S. ; H gholmens Djurg rd, Helsingfors, Finland.
- 1935 ENGELBACH, Dr. PIERRE ; 64 rue Saint-Denis, Colombes (Seine), France.
- 1950 EVANS, F. J., F.Z.S. ; 51 Brunswick Road, Leyton, E. 10.
- 1951 EVANS, G. ; 25 The Crescent, Goldenhill, Stoke-on-Trent, Staffs.
- 1929 EVANS, Miss JOAN ; Townsend, Middle Wallop, Hants.
- 1950 EVANS, R. E., M.B., Ch.B. ; Greenbank, Heughfield Road, Bridge of Earn, Perthshire.
- 1951 EVERETT, H. C. ; Route 1—Box 465, Novato, Calif., U.S.A.
- 1951 FALTIS, J. ; 215 Freeman Street, Woodland, Calif., U.S.A.
- 1949 FANCUTT, FRANK, F.Z.S. ; 86 Linden Drive, Alvaston, Derby.
- 1946 FAUDELL, C. L. ; 45 Dickason Road, Heathmont, Ringwood, Victoria, Australia.

- 1950 FELL, J. ; 34 St. Faith's Street, Lincoln.
- 1951 FELSTEAD, Miss M. ; 108 Beulah Road, Thornton Heath, Surrey.
- 1948 FIELD, H. C. ; 79 Weoley Park Road, Selly Oak, Birmingham, 29.
- 1950 FIERKE, FRED G. ; 602 Point Basse Avenue, Nekoosa, Wisconsin, U.S.A.
- 1950 FIERLAFIJN, J. ; Karel Oomstraat 24, Antwerp, Belgium.
- 1952 FIORAVANTI, The Marquis ; Bellosguardo 14, Florence, Italy.
- 1952 FIRTH, C. G. ; 28 Brennan Road, Tilbury, Essex.
- 1950 FISHER, A. ; 25 Drapers Field, Coventry.
- 1951 FLETCHER, J. ; 6511 Francis Avenue, Seattle, Washington, U.S.A.
- 1935 FLOYD, J. F. M., M.A., M.B.O.U. ; High Bridge Mill, Cuckfield, Sussex.
- 1948 FOGG, H. ; 190 Station Road, Wylde Green, Sutton Coldfield, Nr. Birmingham.
- 1925 FOOKS, F. E. ; Clères, Seine Inférieure, France.
- 1932 FOOKS, H. A. ; Kestrels, Holmshurst, Burwash, Sussex.
- 1951 FORD, J. ; 186 Woolwich Church Street, Woolwich, S.E. 18.
- 1937 FOSTER, H. F. B. ; Park House, Drum Oak, Aberdeenshire.
- 1951 FOTHERGILL, Miss S. A., F.Z.S. ; 8 Whitelands House, Sloane Square, S.W. 3.
- 1952 FOTHERINGHAM, R. ; 16 Fore Street, Johnshaven, Montrose, Scotland.
- 1953 FRAMPTON, P. ; 53 Brunker Road, Broadmeadow, N.S.W., Australia.
- 1953 FRANDSEN, A. C. ; 896 Ruth Drive, Concord, California, U.S.A.
- 1951 FRANK, A. ; "Grantully," De Waal Road, Dieys River, Cape Town, South Africa.
- 1933 FRAYNE, RALPH ; 50 Cantley Lane, Bessacarr, Doncaster.
- 1945 FREEMAN, CHARLES R., F.Z.S. ; 7 Valentine Crescent, Caversham, Reading, Berks.
- 1950 FRILING, W. ; Eikelenberg, Brasschaat, Nr. Antwerp, Belgium.
- 1952 FRODSHAM, J. ; The Frythe, Welwyn, Herts.
- 1950 FROST, R. ; The Gravels, Station Road, Brimington, Chesterfield.
- 1908 FROST, WILFRED J. C. ; c/o Zoological Society of London, Regent's Park, London, N.W. 8.
- 1947 FROSTICK, W. B. ; 26 Minster Precincts, Peterborough, Northants.
- 1929 FURNER, A. C. ; Oakdene, 115 Whitaker Road, Derby.
- 1950 GADD, J. A. ; 75 Holly Road, Aldershot, Hants.
- 1948 GALLAND, JOHN F. ; 197 Fraser Street, Howick, Pietermaritzburg, Natal, South Africa.
- 1941 GARDNER, A. H. ; 21 Kingsland Road, Strathfield, Sydney, N.S.W., Australia.
- 1951 GARNER, R. ; 1 Arno Vale Gardens, Woodthorpe, Nottingham.
- 1951 GARRATT, J. C. ; Wychwood Farm, Shermanbury, nr. Horsham, Sussex.
- 1949 GARY, F. L. ; Earlham, Columbus, New Jersey, U.S.A.
- 1950 GASK, Miss D., F.Z.S. ; "Twa Noon," Lincoln Road, Chalfont-St.-Peter, Bucks.
- 1950 GAUNT, M. W. ; 48 Ainsdale Road, Western Park, Leicester.
- 1950 GAUNTLETT, PHILIP W. ; Bury Farm, Hertingfordbury, Herts.
- 1948 GEERTSEMA, Major C. C. ; Boschwyk, Soestdyk, Holland.
- 1950 GEMMILL, JOHN ; Aikenhead, Kilmarnock, Ayrshire.
- 1948 *GERARD, Hon. ROBERT, M.B.O.U. ; Blakesware, Ware, Herts.
- 1911 GHIGI, Professor ALESSANDRO, C.M.Z.S., M.B.O.U. ; Laboratorio di Zoologia Applicata Alla Caccia, Università di Bologna, S. Giacomo 9, Bologna, Italy.
- 1948 GIBBS, DENNIS G. ; 49 Portland Road, Toton, Beeston, Notts.

- 1948 GIBSON, R. H. ; R.R.2, Box 336, St. Helena, Calif., U.S.A.
 1950 GILBERT, W. O., F.Z.S. ; 31 Douglas Road, Luton, Beds.
 1950 GILBERT, Mrs. W. O., F.Z.S. ; 31 Douglas Road, Luton, Beds.
 1948 GILL, J. M. ; 324 Lady Margaret Road, Southall, Middx.
 1946 GILLEN, JOHN ; Ballycraigy, Ballymena, Co. Antrim, N. Ireland.
 1928 GLENISTER, A. G., F.Z.S., M.B.O.U. ; The Barn House, East Blatchington, Seaford, Sussex.
 1950 GLENN, Mrs. EVA ; c/o Justrite Pet Foods, Ltd., P.O. Box 39, Station B., Hamilton, Ontario, Canada.
 1931 GLOVER, PERCY H., F.Z.S. ; The Wheel House, Portloe, Truro, Cornwall.
 1951 GODELMAN, R. ; Murcocks Farm, Fryerning, Ingatstone, Essex.
 1952 GODSEY, R. E. ; Rt. 8, Box 107-A, Greenville, So. Car., U.S.A.
 1950 GODWIN, J. H. ; 21 Vincent Road, Osterley, Isleworth, Middx.
 1950 GOETZ, L. DALE ; 113 So. St. Louis Avenue, Chicago 24, Illinois, U.S.A.
 1950 GOMM, F. A. ; The Cave, Amersham Road, Hazlemere, High Wycombe, Bucks.
 1933 GOODALL, A. W. ; 33 Stuart Avenue, Hunts Cross, Liverpool.
 1945 GOODWIN, DEREK, M.B.O.U. ; Toft, Monk's Road, Virginia Water, Surrey.
 1920 GOODWIN, TOM ; "Aves," Kiln Lane, Ripley, Surrey.
 1945 GORDON, Mrs. BEATRICE HOOD CLAESON, F.Z.S. ; Cluny Castle, Monymusk, Aberdeen.
 1951 GORDON, W. H., Jr. ; 4412 West Sixteenth Street, Lubbock, Texas, U.S.A.
 1923 *GOSSE, LADY ; Aldgate, South Australia.
 1949 GOUGH, L. ; 101 Claypit Lane, West Bromwich, Staffs.
 1952 GRAHAM, J. ; Bushey Park, Ballyskeagh, Newtownards, Co. Down, Ireland.
 1935 GRANT, FRANK ; Parklands, Stoughton Lane, Evington, Leicester.
 1951 GRAY, J. ; "Braemar," Dryburn Road, Durham Moor, Durham.
 1950 GRAY, W. ; 81 Kirklington Road, Rainworth, Nr. Mansfield, Notts.
 1952 GREGORY, J. J. ; 66 Carew Road, Hamden, Conn., U.S.A.
 1952 GRICE, H. ; Mount Pleasant, Hanging Grimston, Kirby Underdale, York.
 1950 GRIFFITHS, GRAYDON ; School House, Great Brickhill, Bletchley, Bucks.
 1946 GRIFFITHS, WILLIAM ; Downs End, 152 Worple Road, Wimbledon, S.W. 19.
 1947 *GRISWOLD, JOHN A. ; The Zoological Society of Philadelphia, 34th Street and Girard Avenue, Philadelphia 4, Pa., U.S.A.
 1951 GROUND, W. J. ; 56 Park Road, Spalding, Lincs.
 1917 GROVES, Hon. Mrs. MCGAREL ; Battramsley House, Lymington, Hants.
 1951 GRUBER, H. F., F.R.Z.S. (Scot.) ; 9 Churchill, Morningside, Edinburgh 10,
 1928 GUBBAY, Mrs. MAURICE ; c/o A. Ezra, Esq., Foxwarren Park, Cobham, Surrey.
 1951 GUDMUNDSSON, Dr. F. ; Museum of Natural History, P.O. Box 532, Reykjavik, Iceland.
 1908 GULBENKIAN, C. S. ; 214 Oxford Street, Oxford Circus, London, W. 1.
 1947 GULLIVER, V. S. ; 33 Vale Road, Aylesbury, Bucks.
 1951 GURDEN, R. W. ; 23 East St. Helen Street, Abingdon, Berks.
 1927 GURNEY, Miss DIANA ; North Runcion Hall, King's Lynn.
 1942 GUY, CHARLES P. ; Fullaford, Buckfastleigh, S. Devon.
 1932 HACHISUKA, THE MARQUESS, F.Z.S., M.B.O.U. ; Atami, Shizuoka-ken, Japan.
 1939 HADDEN, NORMAN G. ; Underway, West Porlock, Somerset.
 1952 HADLOW, L. A. ; Barbary Farm, Norton, Faversham, Kent.

- 1952 HADZIMA, J. ; 2059 Sweetwater Avenue, Spring Valley, California, U.S.A.
 1951 HAITH, J. E. ; Park Street, Cleethorpes, Lincs.
 1948 HALE, O. ; Laithfield, Digswell, Welwyn, Herts.
 1951 HALL, R. E., M.D. ; Steinbergerstrasse 25, Wiesbaden, Germany.
 1952 HALL-HALL, Major ; Morchard Bishop, Devon.
 1943 HALLSTROM, Sir EDWARD, F.R.Z.S., C.M.Z.S. ; 462 Willoughby Road, Willoughby, Sydney, N.S.W., Australia.
 1937 HALVERSON, A. W. ; 5705 West Erie Street, Chicago 44, Ill., U.S.A.
 1926 HAMPE, ALEX ; 13a Grub am Forst bei Coburg, Bavaria, American Zone, Germany.
 1952 HANNING, W. H., Jr. ; Waukon, Washington, U.S.A.
 1950 HANSEN, E. ; Shenley Nursery, Puckeridge, Nr. Ware, Herts.
 1946 HANSEN, PAUL ; Gormsgade 3, I. Sal, Odense, Denmark.
 1949 HANSEN, ROBERT J. ; P.O. Box 46, Gonzales, Calif., U.S.A.
 1952 HANSEN, SVEND T. ; 101 Amager Landevej, Kastrup, Amager, Denmark.
 1946 HARDING, C. F. ; Brooklyn Stores, Otago Terrace, Larkhall, Bath.
 1948 HARDY, G. C., Jr. ; 61-18th Avenue East, New Westminster, B.C., Canada.
 1942 HARE, TOM, M.D., B.V.Sc., M.R.C.V.S., M.B.O.U. ; 529a Finchley Road, London, N.W. 3.
 1949 HARMAN, H. J. ; 10 Haydon Road, Dagenham, Essex.
 1950 HARMON, Mrs. VERA ; 3601 West 102nd Street, Inglewood 2, Calif., U.S.A.
 1951 HARRIS, Mrs. E. ; 11 Prince Albert Street, Dudley, Worcs.
 1952 HARRISON, B. ; Box 10, Lidingö 1, Stockholm, Sweden.
 1951 HARTLEY, R. A. ; "Bowdon," Shelly Bay, Bermuda.
 1945 HARVEY, ARTHUR W. H. ; Rydal, Long Rock, Penzance, Cornwall.
 1951 HATCH, H. L. ; The Dudley Zoological Society, Dudley, Worcs.
 1946 HAVERSCHMIDT, Fr., M.B.O.U. ; P.O. Box 644, Paramaribo, Surinam, Dutch Guiana.
 1952 HAWKE, E. H. ; Box 796, Lourenco Marques, Portuguese East Africa.
 1953 HAWLEY, W. M. ; 703-15th Avenue, New Westminster, B.C., Canada.
 1946 HAYWARD, Mrs. D. A. ; Invermay, Highland Avenue, Brentwood, Essex.
 1950 HEARD, A. C. ; The Cedars, Baschurch, Shrewsbury.
 1947 HEATH, R. E., B.A., M.B.O.U. ; 2 Pembroke Court, Edwardes Square, W. 8.
 1949 HEFT, ELMER A. ; Green Lake, Wisconsin, U.S.A.
 1952 HEMPSTED, H. J. ; 2 New Houses, Bacton Road, North Walsham, Norfolk.
 1952 *HENDERSON, W. B. ; Viewfield House, Bankfoot, Perthshire.
 1949 HENDY, Major H. R. ; Nyamazani, P.O. Box 46, Mbabane, Swaziland, S. Africa.
 1945 HENRY, B. R., M.B., B.Ch., D.H.P. ; Four Winds, Comber, Belfast.
 1952 HENRY, G. M. ; Ellagalla, Church Enstone, Oxon.
 1952 HEPWOOD, W., F.Z.S. ; "Dogberry," Long Lane, Tilehurst, Reading, Berks.
 1951 HERMITAGE, R. ; 53 Burnt Oak Terrace, Gillingham, Kent.
 1952 HIGHT, G. L., Jr. ; Box 271, Rome, Georgia, U.S.A.
 1951 HILL, K. ; 93 Elmhurst Drive, Hornchurch, Essex.
 1952 HILL, R. C. ; "Tarrants," Wothorpe, Stamford, Lincs.
 1939 HILL, W. C. OSMAN, M.D., Ch.B., F.L.S., F.Z.S. ; Lancaster House, Prince Albert Road, London, N.W. 8.
 1945 HINDLE, E., M.A., Sc.D., F.R.S., F.L.S., F.Z.S. ; The Athenaeum, Pall Mall, London, S.W. 1.

- 1929 HIRST, A. ; Box 262DD, G.P.O., Sydney, N.S.W., Australia.
- 1926 HIRST, ROBERT S., F.Z.S. ; Swincliffe House, Gomersal, Nr. Leeds.
- 1947 HODGES, J. R., F.Z.S. ; 93 Raglan Court, Empire Way, Wembley, Middx.
- 1922 HOLLAS, Mrs. K. E., F.Z.S. ; Hothersall Hall, Ribchester, Nr. Preston, Lancs.
- 1930 *HOLLOND, Miss GLADYS M. B. ; Great Ashfield House, Bury St. Edmunds, Suffolk.
- 1943 HOLLOWAY, JACK, F.Z.S. ; 59 Holyrood Gardens, Stag Lane, Edgware, Middx.
- 1951 HOLM, BJÖRN ; Kyrkogatan 5, Kiruna, Sweden.
- 1951**HOPKINSON, Miss E. M. ; "Wynstay," Balcombe, Nr. Haywards Heath, Sussex.
- 1928 HORNE, DOUGLAS PERCY ; Audley Lodge, Addlestone Park, Addlestone, Surrey.
- 1948 HOSKEN, JOHN H. ; P.O. Box 667, Johannesburg, South Africa.
- 1934 HOUSDEN, Major E. F., M.C., T.D., M.A., F.Z.S. ; 126 Bessborough Road, Harrow.
- 1948 HOUSDEN, EDWIN J. T. ; Mulberry Hill, Baughurst, Hants.
- 1933 HOUSDEN, LESLIE, O.B.E. ; Mulberry Hill, Baughurst, Hants.
- 1942 HOVELL, S. ; 29 Wood Lane, Long Sutton, Spalding, Lincs.
- 1952 HUDDART, B. J., M.B.O.U. ; Shirley House, Marsh Lane, Taplow, Bucks.
- 1950 HUGHES, N. D. ; 1 High Street, Hampton Hill, Middx.
- 1950 HUMPHRYS, F. ; Dorothy Café, Commercial Street, Maesteg, Bridgend, Glam.
- 1939 HURLBURT, Dr. W. E. ; Vineland, Ontario, Canada.
- 1947 HUYTON, A. E. ; 55 Victoria Road, Great Crosby, Liverpool 23.
- 1940 ILES, GERALD, F.Z.S. ; Zoological Gardens, Belle Vue, Manchester 12.
- 1939 INDGE, H. J., F.Z.S. ; Trimstone, Thorpe, Nr. Egham, Surrey.
- 1948 IRVING, G. J. ; 2 Grove Road, Egremont, Cumberland.
- 1952 ISAKSON, Dr. E. W. ; 168 West 12th Street, Ogden, Utah, U.S.A.
- 1926 ISENBERG, A. H. ; P.O. Box 88, 647 Runnymede Street East, Palo Alto, California, U.S.A.
- 1950 JACKSON, ROBERT, F.Z.S. ; 1 Park Avenue, Timperley, Cheshire.
- 1951 JACOBSON, OWE ; Kaprifolgatan 4, Malmö, Sweden.
- 1950 JAMES, N. ; 1 Central Drive, Fenton, Stoke-on-Trent.
- 1942 JANSON, CHARLES W. ; 16 Wilton Crescent, London, S.W. 1.
- 1947 *JASDAN, H. H. YUVRAJ SHREE SHIVRAJ KHACHAR ; The Palace, Jāsdan (Kathiawar), India.
- 1952 JEFFREY, Mrs. I. W. ; 9 Mount Pleasant Crescent, Hastings, Sussex.
- 1952 JOHNSON, F. E. B. ; "Willow Close," Mill Lane, Hulcote, Bletchley, Bucks.
- 1951 JOHNSTONE, S. T. ; The Severn Wildfowl Trust, The New Grounds, Slimbridge, Glos.
- 1949 JONES, C. G. ; 8416 N.E. 3rd Place, Route 1, Bellevue, Washington, U.S.A.
- 1933 JONES, F. Terry, F.Z.S. ; Leckford Abbas, Stockbridge, Hants.
- 1934 JONES, S. B. ; 265 Northway, Maghull, Nr. Liverpool.
- 1950 JONES, Major V. DILWYN ; "Sherwood," Grosvenor Road, Llandrindod Wells, Radnor.
- 1952 KAVANAGH, G. ; Ormonde House, Arklow, Co. Wicklow, Ireland.
- 1952 KEEP, A. E. ; Avondale, Springfield Lane, Broadway, Worcs.
- 1951 KELLOGG, Mrs. F. M. ; Mill Pond Farm, Route 5, Ridgefield, Conn., U.S.A.

- 1927 KERR, J. E. ; Harviestoun, Dollar, Scotland.
- 1938 KING, H. T. ; 80 Bedale Road, Sherwood, Nottingham.
- 1950 KINGSTON, W. R. ; Springfields, Betchton, Sandbach, Cheshire.
- 1950 KIRK, KEITH C. ; 54 Station Road, Sutton-in-Ashfield, Notts.
- 1948 KIRKALDY, Mrs. M., F.Z.S. ; The Grove, Warley Mount, Brentwood, Essex.
- 1952 KIRKHAM, R. G. ; "The Gables," Wynnsward Park, Clonskeagh, Co. Dublin, Ireland.
- 1952 KNIGHT, T. ; 48 Borough Street, Salford 6, Lancs.
- 1950 KNIGHTS, W. A. ; 144 Argyle Street, Cambridge.
- 1928 KNOBEL-HARMAN, Miss M. H., F.Z.S. ; 19 Connaught Square, London, W. 2.
- 1952 KNÖS, C. J. ; Ludvigsborg, Sweden.
- 1949 KOBER, Dr. LEO ; Wien IX, Hofergasse 18/3, Austria.
- 1947 LABDON, B. ; Millberne, Cullompton, Devon.
- 1951 LABELLE, R. ; 832 Beaubien Street Est., Montreal, P.Q., Canada.
- 1929 LAIDLAY, J. C. ; Holmwood, Perth, Scotland.
- 1951 LAKE, Dr. F. B. ; The White House, 5 Portsmouth Road, Kingston-on-Thames.
- 1937 LAKE, GEORGE D., M.B.O.U. ; Audreys, Burghfield Common, Reading, Berks.
- 1945 LAMB, A. ; Mount Pleasant, Hexham, Northumberland.
- 1952 LAND, S. W. ; 841 St. Helens Road, Over Hulton, Bolton, Lancs.
- 1951 LANDER, E. S. ; "Ashland," Hawkwell Park Drive, Hawkwell, Hockley, Essex.
- 1950 LANGBERG, WALTHER ; Tudskaervej 22, Copenhagen, Vanløse, Denmark.
- 1919 LAW, SATYA CHURN, M.A., Ph.D., F.Z.S., M.B.O.U. ; 50 Kailas Bose Street, Calcutta, India.
- 1952 LAWRENCE, C. C. ; Normacot, Cressing, Braintree, Essex.
- 1930 LAX, J. M. S. ; Southfield, Crook, Co. Durham.
- 1950 LAZELL, R. ; 116 The Sunny Road, Enfield Highway, Middx.
- 1949 LAZZERONI, Ivo ; 5034 Templeton Street, Los Angeles 32, Calif., U.S.A.
- 1952 LEDGER, H. G. ; New Town Cottage, Wingham, Kent.
- 1946 LEMON, Miss E. ; 3007 Wilson Avenue, South Burnaby, B.C., Canada.
- 1952 LESTER, J. W., F.L.S., F.Z.S. ; c/o Zoological Society of London, Regent's Park, N.W. 8.
- 1949 LEVER, H. ; 14 April Street, C-on-M., Manchester, 13.
- 1950 LEVY, E. ; 22 Crossbow Road, The Lowe, Chigwell, Essex.
- 1946 LEWIS, W. O. ; Milnsbridge, Bicton Heath, Shrewsbury.
- 1952 LIMBERG, HANS ; Harscampstrasse 62, Bad Aachen, Germany.
- 1951 LINDSAY, A. ; 422 Lake Street, Oak Park, Illinois, U.S.A.
- 1952 LINDSAY, J. ; 16 Bridge Street, Brechin, Angus, Scotland.
- 1951 LIPPENS, LÉON ; Den Hul, 43 Boslaan, Knocke-Le Zoute, Belgium.
- 1952 LITTLECHILD, B. ; 4 Rye Mead Cotts, Rye Road, Hoddesdon, Herts.
- 1941 LIVERMORE, JOHN W. ; 135 East 54th Street, Apt. 11 B., New York City, U.S.A.
- 1952 LOAR, J. A. ; Woodbine Cottage, Barford, Nr. Warwick.
- 1923** LODGE, GEORGE E., F.Z.S., M.B.O.U. ; Hawkhouse, Upper Park Road, Camberley, Surrey.
- 1953 LOGAN, F. ; 21 Plantagenet Street, Nottingham.
- 1951 LOUWMAN, P. ; Dierenpark Wassenaar, Rijksstraatweg 667, Wassenaar, Holland.

- 1952 LOVELL, D. R. ; "St. George," 51 Mildred Avenue, Harlington, Hayes, Middx.
- 1927 LOWE, Rev. J. R. ; The Vicarage, Coln Street, Aldwyn, Fairford, Glos.
- 1951 LUCAS, V. J. ; Park House, West Rasen, Market Rasen, Lincs.
- 1947 LUMSDEN, Lt.-Col. WILLIAM V. ; Sluie, Banchory, Aberdeenshire, Scotland.
- 1952 LUTHER, H. M. ; 26 Park Crescent, Regent's Park, W. 1.
- 1947 LYNCH, G., F.Z.S. ; 21 Sunnycroft Road, Hounslow, Middx.
- 1927 LYON, Capt. the Hon. Michael ; Glamis Castle, Glamis, Forfarshire.
- 1951 MABEY, R. N. ; Continental Bank Building, Salt Lake City, Utah, U.S.A.
- 1948 MACK, H. G. ; c/o Gilson Manufacturing Co., Ltd., Guelph, Ontario, Canada.
- 1948 MACKENSEN, RICHARD S. ; Yardley, Pa., U.S.A.
- 1947 MAITLAND, Miss M. C. ; North Lodge, Goring-by-Sea, Sussex.
- 1948 MALISOUX, Madame YVAN ; Beez, Namur, Belgium.
- 1950 MALLEN, A. ; 34 Willingsworth Road, Ocker Hill, Nr. Wednesbury, Staffs.
- 1946 MARSHALL, D. A. ; 21 Wilson Avenue, Troon, Ayrshire.
- 1950 MARSHALL, J. C. ; 25 Stevens Road, Sandiacre, Notts.
- 1930 MARTIN, A. ; 26 Somerford Road, Reddish, Stockport.
- 1934 MASON, Miss EVA INGLIS ; Peppercorn Cottage, Burton, Christchurch, Hants.
- 1951 MASON, H., M.C., F.Z.S. ; 2 Dunstan Road, London, N.W. 11.
- 1952 MASON, L. M. ; Talbot Manor, Fincham, King's Lynn, Norfolk.
- 1935 MATTHEWS, Mrs. W. M. ; Glandore, New Park Road, Cranleigh, Surrey.
- 1941 MAXWELL, Major GAVIN, F.R.G.S., F.Z.S. ; Monreith, Whauphill, Wigtownshire.
- 1929 MAXWELL, P. H., F.Z.S., M.B.O.U. ; c/o Zoological Society of London, Whipsnade Park, Nr. Dunstable, Beds.
- 1913 *MAXWELL-JACKSON, Miss M., F.Z.S. ; Percy House, Scotton, Knaresborough, Yorks.
- 1922 *MAYER, F. W. SHAW, C.M.Z.S. ; c/o Mr. R. W. Tebb, Lae, New Guinea, via Australia.
- 1951 MEADOWS, R. ; c/o Philadelphia Zoological Garden, 34th Street and Girard Avenue, Zone 4, Philadelphia, U.S.A.
- 1948 MEEREN, MICHEL BRAUN DE TER. ; L'Hesidelle, Archennes, par Grez-Doiceau, Belgium.
- 1935 MERCK, Dr. WOLFGANG ; Marienhöhe 4, Hamburg-Blankenese, Germany.
- 1950 MERRY, C. ; 89 King William Street, Tunstall, Stoke-on-Trent.
- 1951 MIDDLETON, G. ; 50 Carter Street, Uttoxeter, Staffs.
- 1951 MIDWINTER, J. ; 62 Oxford Road, Burford, Oxford.
- 1951 MILLER, H. E. ; "Westwater," Tedburn St. Mary, Nr. Exeter, Devon.
- 1950 MILLER, R. C. ; Standard Bank of South Africa, Ltd., Pietermaritzburg, Natal, S. Africa.
- 1937 MILLIGAN, H. ; Upper Manor Farm, Leckford, Stockbridge, Hants.
- 1951 MILLIGAN, I. B. ; 21A Stamford New Road, Altrincham, Cheshire.
- 1951 MILNE, R. S. ; 18 Silverwell Street, Bolton, Lancs.
- 1929 MILNES-COATES, Sir CLIVE, Bart., F.Z.S. ; 13 Hyde Park Gate, London, S.W. 7.
- 1937 MILTON, Capt. STANLEY ; 75 Portland Avenue, Gravesend, Kent.
- 1948 MITCHELL, A. ; 16 Albany Street, Hull, Yorks.
- 1952 MITCHELL, Mrs. F. G. ; Clapton Manor, Kettering, Northants.
- 1943 MITCHELL, HAROLD A. ; 2 Stuart Street, East Kilbride, Lanarkshire.

- 1952 MITCHELL, R. E. ; 49 Woodlands Avenue, Church End, Finchley, N. 3.
 1950 MITCHELL-FOX, Mrs. E. M. ; Tresawle, Wheatridge Lane, Livermead,
 Torquay, Devon.
- 1951 MOFFIT, C. ; 3 Hartley Avenue, Monkseaton, Northumberland.
 1926 MOODY, A. F. ; Lilford, Oundle, Peterborough.
 1949 MOODY, H. ; 91 Barbara Avenue, Uppingham Road, Leicester.
 1949 MOORE, A. J., F.Z.S., F.R.H.S. ; BM/XKCR, London, W.C. 1.
 1950 MOORE, J. T. ; 17 Gold Street, Wellingborough, Northants.
 1928 MOORE, ROBERT T. ; 582 Meadow Grove Place, Flintridge, Pasadena, 3,
 Calif., U.S.A.
- 1953 MORELLI, Mrs. C. P. ; Route 1, Everson, Washington, U.S.A.
 1950 MORGAN, C. A. ; "Malvern," 97 Gaynes Park Road, Upminster, Essex.
 1949 MORN, C. J. ; 52 Draycott Place, London, S.W. 3.
 1931 MORRISON, A., F.Z.S., M.B.O.U. ; Sarikei, Sarawak.
- 1947 MOSFORD, FRANK ; The Elms, Churton Heath, Saughton, Nr. Chester.
 1927 MOTT, B. ; The Croft, Bittell Road, Barnt Green, Worcs.
 1929 MOTTERSHEAD, G. S., F.Z.S. ; Zoological Gardens, Chester.
 1923 MOUNTAIN, Capt. WALTON ; Groombridge Place, Groombridge, Kent.
 1949 MUNDEN, N. J. ; Wilmer Lodge, Epsom Road, Guildford, Surrey.
 1952 MURRAY, G. T. ; 821 Buchanan Street, Gary, Indiana, U.S.A.
 1947 MURRAY, H. ; Bracken, Cornsland, Brentwood, Essex.
 1952 MURRAY, J. B. ; c/o Messrs. Bovril, Ltd., 123 Chaussée de Mons, Brussels,
 Belgium.
- 1939 MURRAY, RAY ; 12 High Road, Camberwell, E. 6, Victoria, Australia.
 1949 MURRAY, SAMUEL, F.Z.S. ; 18 Somerset Gardens, Lewisham, S.E. 13.
 1926 *McCULLAGH, Sir CRAWFORD, Bart. ; Lismara, Whiteabbey, Belfast,
 N. Ireland.
- 1950 McGOWAN, H. ; 13 Robertson Way, Ash, Aldershot, Hants.
 1952 MACINTOSH, D. G. ; Reiffer Park, Sorbie, Newton-Stewart, Wigtownshire.
 1950 MCKENZIE, D. L. ; The New Inn, Winchelsea, Sussex.
 1952 MACTAVISH, J. A. ; "Forrest Bank," 20 Damdale, Peebles, Scotland.
- 1934 NAETHER, Professor CARL ; 4442 Woodman Avenue, Sherman Oaks,
 California, U.S.A.
- 1949 NEL, THOMAS ; P.O. Mahlangasi, Via Magut, Natal, S. Africa.
 1952 NEWELL, J. P. ; 4 Pearse Street, Athlone, Ireland.
 1930 NEWILL, D. S., M.D. ; Box 634, Connellsville, Pa., U.S.A.
 1951 NEWMAN, I. N. ; 71 Queens Road, Watford, Herts.
 1915 NEWMARCH, C. T., F.Z.S. ; 56 Riddlesdown Avenue, Purley, Surrey.
 1931 NICHOLSON, N. ; Edenvale, 16 Weardale Place, Stockton-on-Tees.
 1950 NICHOLSON, W. ; 15 Neville Road, Darlington.
 1947 NICOLLAUD, J. G. ; 48 rue Descartes, Chinon, France.
 1950 NIXON, JOSEPH ; 5 Bank Street, Carlisle.
- 1947 NOBLE, R. A. W. ; Little Grange, Canterbury Road, Margate, Kent.
 1948 NOORDZIJ, J. H. ; Burg. Visserpark 13, Alphen a/d Rijn, Holland.
 1930 NORCROSS, HERBERT ; Normanhurst, 22 Mount Road, Middleton, Lancs.
 1949 NOREEN, GEORGE W. ; 10440-7th Avenue, N.W., Seattle 77, Washington,
 U.S.A.
- 1939 NORRIS, KENNETH A., F.Z.S., M.B.O.U. ; Elmstone, 45 Highfield Road,
 Purley, Surrey.
 1951 NOURSE, DUDLEY ; "Content," 4 Earlswood Place, Durban North, Natal,
 South Africa.

- 1950 OLIVER, JOHN W. ; R.1. Box 606, Encinitas, Calif., U.S.A.
 1950 OLIVIER, GEORGES, F.Z.S., M.B.O.U. ; 6 rue Ch.-Flavigny, Elbeuf (Seine Inférieure), France.
 1945 OLSON, LEO B. ; 835 South First Street, De Kalb, Illinois, U.S.A.
 1952 OLSSON, C. J. ; Erik Dahlbergsgatan 19, Gothenborg, Sweden.
 1951 O'MALLEY, B. ; Anchor Buildings, Westport, County Mayo, Ireland.
 1928 OSTREHAN, CLEMENT ; Kington Rectory, Worcester.
 1947 OVEREND, Miss EUNICE ; 49 Alexandra Road, Frome, Somerset.
- 1944 PALMELLA, His Excellency the Duke of, F.Z.S. ; 116 Rua Escola Polytechnica, Lisbon, Portugal.
 1951 PALMER, C. L. ; 102 Paston Lane, Peterborough.
 1906 PAM, Major ALBERT, O.B.E., M.A., F.L.S., F.Z.S. ; Wormleybury, Broxbourne, Herts.
 1950 PANTING, PETER J. ; "Belle Vue," Main Street, Goodwick, Pems.
 1950 PARFITT, N. D. ; 8 "Sweetleaze", Stoke St. Michael, Oakhill, Bath, Somerset.
 1950 PARREN, RONALD J. ; Lindon House, South Brink, Wisbech, Cambs.
 1952 PARSHALL, Mrs. DEWITT ; 378 Hot Springs Road, Montecito, Santa Barbara, Calif., U.S.A.
 1952 PARTRIDGE, P. B. ; 164 Waverley Avenue, Twickenham, Middx.
 1934 PARTRIDGE, W. R., F.Z.S. ; The Bungalow, Lower Haseler, Nr. Evesham, Worcs.
 1952 PATON, T. ; "St. Quentins," Stoneyburn, By Bathgate, West Lothian.
 1952 PATTEN, R. A. ; Box 1, Post Office, Mosman, Sydney, N.S.W., Australia.
 1949 PAYN, Major W. H., M.B.E., M.B.O.U. ; Hartest Place, Bury St. Edmunds, Suffolk.
 1950 PAYNE, C. M. ; Sherbourne Priors, Warwick.
 1929 PEARSE, Mrs. A. A., F.Z.S. ; Flamstead House, Flamstead, Nr. St. Albans, Herts.
 1951 PEARSON, J. C. ; 63 St. Michael's Road, Aldershot, Hants.
 1946 PEARSON, RAYMOND, 179 West Auckland Road, Darlington, Co. Durham.
 1951 PEASE, Mrs. S. ; R.D. 4, North Harmony Road, Freehold, N.J., U.S.A.
 1940 PEAT, RODERICK M., F.Z.S. ; 11 Ironmonger Lane, London, E.C. 2.
 1948 PHILLIPS, Mrs. A. ; 3 Pond Road, Blackheath, S.E. 3.
 1935 PHIPPS, Mrs. L. N., F.Z.S., M.B.O.U. ; The Manor House, Minster Lovell Oxon.
 1903 PICKFORD, RANDOLPH JOHN ; c/o The Manager, Midland Bank Ltd., 629 Attercliffe Road, Sheffield 9.
 1948 PINFIELD, S. N. ; 95 Pinfold Lane, Penn, Wolverhampton.
 1934 PITT, W. S. ; Wildwood, Silverdale Avenue, Walton-on-Thames, Surrey.
 1952 PLANT, J. J. ; 67a Chestergate, Macclesfield, Cheshire.
 1924 PLATH, KARL ; 305 S. Cuyler Avenue, Oak Park, Illinois, U.S.A.
 1947 PODMORE, C. R. ; 352 Carter Knowle Road, Ecclesall, Sheffield 11.
 1949 POHLE, HORST C. ; Fichtestrasse 7, Bayreuth, Germany.
 1937 POLAK, Dr. A. C. ; Spoorstraat 15, Amersfoort, Holland.
 1925 POLTIMORE, Lady ; Court House, North Molton, N. Devon.
 1950 PORTER, J. E. ; West Leigh, 17 Newminster Road, Fenham, Newcastle-upon-Tyne 4.
 1920 PORTER, SYDNEY, F.Z.S., M.B.O.U. ; The White Gates, 149 Stenson Road, Derby.
 1914 POTTER, BERNARD E., M.B., M.R.C.S., L.R.C.P., F.Z.S. ; 39 Devonshire Place, London, W. 1.

- 1952 PREAN, Mrs. N. ; North Luffenham Hall, North Luffenham, Rutland.
 1928 PRESTWICH, ARTHUR A. ; 61 Chase Road, Oakwood, N. 14.
 1946 PRESTWICH, Mrs. J. A. ; Coltishall, Broad Walk, Winchmore Hill, N. 21.
 1951 PRIEST, Dr. A. A. ; 434-6 Acheson Building, 2131 University Avenue, Berkeley 4, Calif., U.S.A.
 1952 PRUVOST, E. ; Glenwood Farm, Hempstead, Gillingham, Kent.
 1943 PUGH, M. C. ; 18 Beech Road, Monmouth, Mon.
- 1948 QUENBY, H. F. ; "Standard" House, High Street, Baldock, Herts.
 1913 QUINCEY, R. S. DE Q., F.Z.S. ; The Vern, Bodenham, Hereford.
- 1948 RABBIN, HILBERT J., I.S.O. ; 33 Kingsway, Wembley.
 1949 RAGAN, CALVIN ; P.O. Box 7, Bell, California, U.S.A.
 1943 RANKIN, Lieut.-Col. N., F.R.G.S., F.R.P.S. ; House of Treshnish, Calgary, Isle of Mull, Argyll, Scotland.
 1950 RATH, JOSEF ; Moosburger Strasse 3, Pfaffenhofen-Jlm (Oberbayern), Germany.
 1939 RAVEN, WILLIAM H., O.B.E. ; The Mill House, Newbold-on-Stour, Nr. Stratford-on-Avon.
 1950 RAYMAEKERS, L. ; 71 Avenue Molière, Brussels, Belgium.
 1947 REAY, J. H. ; Cranmore, The Close, Hillingdon, Middx.
 1950 REED, Miss D. A. ; 38 Markham Street, Chelsea, S.W. 3.
 1950 REED, Mrs. E. CAROLINE WARMINGTON ; Weald's Gate, Wadhurst, Sussex.
 1950 REES, D. W. ; 79 King's Road, Canton, Cardiff, S. Wales.
 1950 REES, FRED ; Leckford, Stockbridge, Hants.
 1939 REID, Miss MARION C. ; c/o Messrs. John Reid, Ltd., Walt Street, Newcastle, N.S.W., Australia.
 1951 REID-HENRY, D. M. ; 43 West View Drive, Woodford Green, Essex.
 1951 RENDELL, R. G. ; 60 Guinions Road, High Wycombe, Bucks.
 1949 RETHERS, FRANK A. ; 605 Market Street, San Francisco 5, Calif., U.S.A.
 1952 RETIEF, J. E. ; 56 Lincoln Street, Bellville, Cape Province, South Africa.
 1928 REVENTLOW, AXEL, C.M.Z.S. ; Zoologisk Have, København F., Denmark.
 1946 RICARDO, Mrs. MARY C. ; Audreys, Burghfield Common, Reading, Berks.
- 1950 RICH, JOSEPH W. ; 1073 West 11th Street, San Pedro, Calif., U.S.A.
 1949 RICHARDSON, JAMES ; 101 Stockton Lane, York.
 1948 RIIS-HANSEN, KAI ; Nørre Alle 75, Glostrup, Denmark.
 1937 RIPLEY, S. DILLON, Ph.D., M.B.O.U. ; Kilravock, Litchfield, Conn., U.S.A.
 1935 RISDON, D. H. S. ; The Dudley Zoological Society, Dudley, Worcs.
 1951 ROBERTS, C. ; Chedington Court, Beaminster, Dorset.
 1943 ROBERTSON, Dr. A. R. ; P.O. Box 95, Kroonstad, O.F.S., South Africa.
 1951 ROBERTSON, J. M. ; Rosearden, 10 Petrie Crescent, Elgin, Morayshire.
 1947 ROBINSON, B. E. ; Field House, Blackborough Road, Reigate, Surrey.
 1951 ROBINSON, G. E. ; 487 Little Horton Lane, Bradford.
 1953 RODEN, Miss L. B. ; Buckles, Burwash Common, Sussex.
 1952 RODGERS, J. ; 4 Conitor Estate, Newton Abbot, Devon.
 1951 ROLPH, W. ; Undley Lodge, Lakenheath, Suffolk.
 1945 ROONEY, JAMES P., M.B.O.U. ; 1514 South 12th Avenue, Yakima, Washington, U.S.A.
 1946 ROOTE, CYRIL C. ; 116 Cardinal's Walk, Scraftoft Lane, Leicester.
 1952 ROUÉ, H. ; L'Astrée, Boulevard du Théâtre, Chambéry, Savoie, France.
 1951 ROYDEN, T. W. E. ; Broad House, Fleggburgh, Norfolk.

- 1952 RUDKIN, F. H., Jr. ; 3rd and Fillmore Streets, Fillmore, California, U.S.A.
 1950 RUSSELL, BARNABAS, F.R.S.A., F.Z.S., F.R.H.S. ; 20 Bucklersbury, Hitchin, Herts.
 1952 RYAN, C. J. ; 515 Madison Avenue, New York 22, N.Y., U.S.A.
 1927 RYCROFT, Mrs. VIOLET ; Grey Gables, Cirencester, Glos.
- 1951 SALTERI, D., F.Z.S. ; 44 Montrose Terrace, Edinburgh, 7.
 1945 SAUNDERS, RONALD, F.Z.S. ; Regent Parade, Sycamore Road, Amersham, Bucks.
 1950 SAWDEN, M. ; Farm House, H.M.B.I., Feltham, Middx.
 1949 SAWYER, R. C. J., F.Z.S. ; 226 Haggerston Road, London, E. 8.
 1951 SCHUMACHER, Mrs. H. L. ; 7027 Sycamore Avenue, Seattle 7, Washington, U.S.A.
 1914 SCHUYL, D. G. ; Kralingscheweg 332, Rotterdam O, Holland.
 1934 SCOTT, A. H., F.Z.S. ; Abbotswell, Frogham, Fordingbridge, Hants.
 1938 *SCOTT, PETER, M.B.E., D.S.C., M.A., F.Z.S., M.B.O.U. ; The New Grounds, Slimbridge, Gloucestershire.
 1952 SCOTT, R. A. ; 1 Lambton Road, Broadmeadow, N.S.W., Australia.
 1928 SCOTT-HOPKINS, Capt. C., F.Z.S. ; Knoll House, Shiplake, Oxon.
 1951 SCROGGIN, J. B. ; Helotes, Texas, U.S.A.
 1951 SEAGO, J., F.Z.S. ; Hall Common, Ludham, Norfolk.
 1951 SEARS, JOHN L. ; Reel Hall, Shamley Green, Guildford, Surrey.
 1951 SEATON, Major C. P. H. ; 62 Picardy Road, Belvedere, Kent.
 1952 SÉE, Miss M. ; Avifauna, Alphen-aan-der-Rijn, Holland.
 1952 SENNETT, R. S. ; 354 Concord Avenue, Toronto, Canada.
 1951 SHAFFER, B. ; 3006 South West Temple, Salt Lake City, Utah, U.S.A.
 1952 SHARP, H. F. ; 33 Victoria Street, Campbellton, New Brunswick, Canada.
 1932 SHEARING, A. P. ; The Aviaries, Foxwarren Park, Cobham, Surrey.
 1944 SHEARMAN, CHARLES S. ; "Malverno," 238 Main Road, Pinetown, Natal, S. Africa.
 1951 SHELLIM, Dr. M. A. ; 7 Middleton Mansions, Calcutta 16, India.
 1949 SHELTON, LARRY C. ; P.O. Box 363, Harriman, Tenn., U.S.A.
 1952 SHELTON, W. E. ; "Elgar," St. John's Road, Newbold, Chesterfield.
 1950 SHORNEY, E. G. ; 15 Sandall Close, Ealing, W. 5.
 1949 SHORTMAN, H. K. W., F.Z.S. ; 45 Commercial Street, Newport, Mon.
 1946 SIBLEY, A. E., F.Z.S. ; 15 Windsor Crescent, Harrow, Middx.
 1934 SIBLEY, C. L. ; Sevenfires, 111 Main Street, Nantucket, Mass., U.S.A.
 1904 SILVER, ALLEN, F.Z.S., M.B.O.U. ; Birdsacre, Llantarnam, Mon.
 1924 SIMPSON, H. W. ; 6 Barry Road, Stonebridge, Willesden, N.W. 10.
 1937 SIMPSON, Mrs. M. K. M. ; The Hollies, Limekilns, Dunfermline, Fife.
 1952 SIVONEN, N. ; Pacific Beach, Washington, U.S.A.
 1947 SLADER, W. T., J.P. ; Pentillie, Honiton Road, Exeter.
 1952 SMITH, A. J. ; 11 High Street, Nairn, Scotland.
 1941 SMITH, E. WILFORD ; "Lynwood," 15 Kingsway Road, Leicester.
 1947 SMITH, KENNETH J. ; Paignton Zoological Gardens, Paignton, Devon.
 1951 SMITH, Mrs. R. A. ; Rosemead, Beckford, Nr. Tewkesbury, Glos.
 1952 SMITH, S. ; c/o Henry Sotheren, Ltd., 2-5 Sackville Street, Piccadilly, London, W. 1.
 1952 SMITH, S. H. ; 10 South Bay Road, Repulse Bay, Hong Kong.
 1952 SMITH T. ; 46 Millburn Street, Crook, Durham.
 1950 SMITH, W. H. ; "The Bungalow," Georgia, Nancledra, Cornwall.
 1917 SMITH, W. PROCTER, F.Z.S. ; Bexton House, Knutsford, Cheshire.

- 1946 SOANES, ARTHUR C. ; The Fishery Inn, Elstree, Herts.
 1950 SOAR, E. R. ; 50 Harvey Road, West End Road, Greenford, Middx.
 1951 SOUTH, E. A. ; P.O. Box 487, Colusa, Calif., U.S.A.
 1949 SPACKMAN, G. DONALD, Jr. ; Hill Farm, Coatesville, Penna., U.S.A.
 1952 SPEED, Mrs. D. A. ; 925 Clinton Avenue, Fresno, California, U.S.A.
 1951 SPEEL, C. ; Saxenburgerweg 9, Bloemendaal, Holland.
 1952 SPENCE, T., M.R.C.V.S. ; Kincraigie, Send Hill, Send, Woking, Surrey.
 1923 SPRAWSON, Professor Evelyn, M.C., D.Sc., M.R.C.S., F.Z.S. ; Cranford, Welcomes Road, Kenley, Surrey.
 1923 SPURWAY, N. B. ; "The Hermitage," Oadby, Leicestershire.
 1939 SQUIRE, E. O. ; Basmead Manor, St. Neots, Hunts.
 1939 STEINBECK, J. W. ; P.O. Box 832, Concord, California, U.S.A.
 1952 STEPHENSON, E. ; 11 Sebastopol Terrace, Bowden Close, Nr Crook, Co. Durham.
 1932 STEVENS, RONALD ; Walcot Hall, Lydbury North, Shropshire.
 1952 STEVENS, S. H. ; Ivydene, Copse Lane, Freshwater, Isle of Wight.
 1952 STODDART, R. W. ; 26 Owston Road, Carcroft, Doncaster, Yorks.
 1922 STOKES, Capt. H. S., M.C., F.Z.S. ; Longdon, Rugeley, Staffordshire.
 1952 STONE, R. ; 612 Romford Road, Manor Park, E. 12.
 1928 STORMONTH-DARLING, P. ; 7 Egerton Court, Harrington Road, London, S.W. 7.
 1951 STRAIGHT, WHITNEY, C.B.E., M.C., D.F.C. ; The Aviary, Windmill Lane, Southall, Middx.
 1948 STRANGE, FRANK E. ; 611 S. Broadway, Redondo Beach, California, U.S.A.
 1948 STRETCH, H. ; 119 Wilton Road, Salisbury.
 1950 STROMBERG, D. ; "The Aviary," 57 Elgin Road, Seven Kings, Essex.
 1930 STROMBI, Miss DORA A. ; Eastbank House, Brechin, Angus.
 1949 STRUTT, Hon. PETER A. ; Bentley Park, Ipswich, Suffolk.
 1950 STURGIS, A. F. ; 740 Sansom Street, Philadelphia 6, Pa., U.S.A.
 1952 SUNDSTRÖM, Miss BRITT-MARIE ; Östra Larmgatan 3, Gothenburg, Sweden.
 1952 SUTTON, J. W. C. ; Church Farm, Little Barningham, Matlaske, Norwich.
 1938 SUTTON, PETER, M.R.C.V.S. ; 11 Culverden Park Road, Tunbridge Wells.
 1951 SVANE, C. H. ; Frederikssundsvej 168, Brønshøj, Copenhagen, Denmark.
 1950 SVERRE, ERIK, Jr., Box 15, Skoyen, Norway.
 1950 SVOBODA, Dr. BEN J. ; 1711 N. Dillon, Los Angeles 26, Calif., U.S.A.
 1902 SWAN, J. A., F.Z.S. ; Hazel Mere, Rectory Lane, Sidcup, Kent.
 1950 SWAN, Mrs. J. A. ; Hazel Mere, Rectory Lane, Sidcup Kent.
 1951 SWANEPOEL, P. ; Box 366, Pietermaritzburg, Natal, South Africa.
 1948 SYKES, JOSEPH ; 167 North High Street, Musselburgh, Scotland.
- 1946 TANCRED, P. H. ; 19 Hardy Street, Ashfield, Sydney, N.S.W., Australia.
 1946 TAYLOR, JAMES, M.B.O.U. ; Lower Hilcot, Withington, Cheltenham, Glos.
 1944 TAYLOR, J. G. ; St. Anne's Park View, Toll Hill, Castleford, Yorks.
 1949 TAYLOR, LAWRENCE N. ; Shadowhurst Farm, Glen Moore, Pa., U.S.A.
 1952 TAYLOR, R. A., F.Z.S. ; Blue Bird, Ferry Avenue, Chertsey Lane, Staines.
 1945 TAYLOR, T. G., M.A. ; 16 Derby Road, Caversham, Reading.
 1930 TEAGUE, P. W. ; c/o The Red House, 10 Stockton Hill, Dawlish, Devon.
 1926 TENNANT, Hon. STEPHEN ; Wilsford Manor, Salisbury.
 1950 TENNEY, Mrs. EDNA ; Star Route, San Marcos Pass, Santa Barbara, Calif., U.S.A.

- 1946 TERRY, Miss MARGUERITE ; Lumeah, Boulivot, Grouville, Jersey, Channel Islands.
- 1952 THEAKER, J. N. ; The Grove, Swadlincote, Nr. Burton-on-Trent.
- 1952 THEUNISSEN, S. ; 19 McGhee Street, Sale, Victoria, Australia.
- 1949 THOMAS, A. E. ; Burnt House, Chigwell, Essex.
- 1931 THOMAS, F. E. ; Barnfield, Dunsfold, Surrey.
- 1949 THOMAS, RAY ; 1601 South Hope Street, Los Angeles 15, Calif., U.S.A.
- 1950 THOMPSON, G. E., F.Z.S. ; 84 Churchbury Lane, Enfield, Middx.
- 1950 THOMPSON, LLOYD B. ; 2010 Cliff Avenue, North Burnaby, Vancouver, B.C., Canada.
- 1946 *TINSLEY, PATRICK C. ; Hurn Hall, Holbeach, Spalding, Lincs.
- 1946 *TINSLEY, WILLIAM G. ; The Poplars, Holbeach, St. Marks, Lincs.
- 1952 TOLLEMACHE, Major J. E. H., M.C. ; Helmingham Hall, Stowmarket, Suffolk.
- 1950 TONG, E. H. ; Zoological Society of London, Whipsnade Park, Nr. Dunstable, Beds.
- 1950 TORRENS, ROBERT ; Bridge Street, Kilrea, Co. Derry, N. Ireland.
- 1951 TREVISICK, C. H., F.Z.S. ; Ilfracombe Zoo Park, Comyn Hill, North Devon.
- 1951 TRISE, H. R. ; 89 Dover Road, Copnor, Portsmouth.
- 1952 TROUBRIDGE, Lady ; Middle Oakshott, Hawkley, Liss, Hants.
- 1947 TUCKWELL, DAVID ; Asliesk, Alves by Forres, Morayshire.
- 1933 TUMA, F. L. ; Ola Hanssonsgatan 3, Malmö, Sweden.
- 1939 TUNESI, A. W. ; Elmside, 93 Vicarage Road, Sunbury-on-Thames, Middx.
- 1951 TURNER, E. L. ; c/o Rev. P. C. Turner, Route 2, Bassett, Virginia, U.S.A.
- 1928 TURNER, H. B. ; Malverleys, Nr. Newbury, Berks.
- 1930 *TURNER, WALTER H. ; 15 Sutherland Road, Chatswood, N.S.W., Australia.
- 1934 TYEBJEE, ABDE AMIRUDIN SHALEBHOY ; Malabar Court, Ridge Road, Malabar Hill, Bombay 6, India.
- 1951 TYEBJEE, SHALE D. S. ; Pabaney House, Cooperage Road, Bombay 1, India.
- 1946 UNDERWOOD, A. J. ; 24 Wellington Street, Kettering, Northants.
- 1952 UPSON, J. W. ; 1 Golden Lion Lane, Harwich, Essex.
- 1947 VALLEN, J. H. J. M., M.D. ; Antoniuslaan 105, Blerick-Venlo, Holland.
- 1951 VAN APeldoorn, A. G. ; "Het Soerel," Heerde, Holland.
- 1949 VAN DEN BERGH, WALTER, C.M.Z.S. ; Société Royale de Zoologie d'Anvers, 26 Place Reine Astrid, Antwerp, Belgium.
- 1953 VAN DEN BRINK, G., Jr. ; "Avifauna" Park, Alphen a.d. Rijn, Holland.
- 1950 VAN DIJK, H. C. ; Fabriekstraat 6, Tilburg, Holland.
- 1948 VAN DIJK, H. J. ; Korvelscheweg 97, Tilburg, Holland.
- 1950 VAN DIJK, N. ; Bisschop Aelenstraat 50, Tilburg, Holland.
- 1937 VANE, E. N. T., F.Z.S., M.B.O.U. ; Fairacre, Chiltern Road, Ballinger, Gt. Missenden, Bucks.
- 1934 VAN HEYST, A. F. C. A. ; Koningin Wilhelminalaan 30, Amersfoort, Holland.
- 1951 VAN LANTSCHOOT, C. ; Heldenlaan 88, Eeklo, Belgium.
- 1950 VAN LEEUWEN, J. DOCTERS ; Hoveniersweg 37, Tiel, Holland.
- 1951 VAN VOLLenhooven, P. ; Burgem Knappertlaan 128, Schiedam, Holland.
- 1951 VAN WACHEM, R. H. ; Joh. Geradtsweg 44, Hilversum, Holland.

- 1949 VEALL, Miss P. J. ; 30 Cambourne Avenue, W. Ealing, W. 13.
 1947 VEITCH, Capt. R. W., M.B.E., B.Sc. ; Redridge, Garforth, Nr. Leeds.
 1926 VENNING, H. C. ; Hawksdown House, Walmer, Kent.
 1928 VIERHELLER, GEORGE P. ; St. Louis Zoological Park, St. Louis 10, Mo., U.S.A.
 1947 VINSON, MARK ; The Beeches Farm, Cowden, Edenbridge, Kent.
 1936 VOY, Miss HILDA ; Lynchets, Longbridge Deverill, Warminster, Wilts.
 1948 VUCOVICH, PAYSON ; Rte. 5, Box 846, Hanford, California, U.S.A.
- 1948 WADDAMS, W. LAWSON : 34 Thurlston Avenue, Sheldon, Birmingham 26.
 1947 WAIT, F. R., F.Z.S. ; Bridge House, Hemsby, Nr. Great Yarmouth, Norfolk.
 1952 WAITE, J. ; 6 Attwood Street, Kids Grove, Staffs.
 1948 WAKEFIELD, Mrs. C. H. ; 139 Senic Drive, Palomar Park, Redwood City, California, U.S.A.
 1952 WALLACE, J. ; Saltoun Fur Farm, Pencaitland, East Lothian.
 1936 WALLER, H., F.Z.S. ; Oldway, Pilgrims Way, Westhumble, Dorking, Surrey.
 1951 WALLIN, Mrs. O. H. ; 11543-36 N.E., Seattle 55, Washington, U.S.A.
 1952 WALMSLEY, J. ; 1 Newton Drive East, Normoss, Blackpool, Lancs.
 1951 WALMSLEY, J. H. ; 24 Willow Drive, Forest Hill, Port Elizabeth, South Africa.
 1952 WARD, Mrs. M. K. ; Dilhorne House, Dilhorne, Stoke-on-Trent.
 1952 WARING, S. D. ; 13 Oakhill Road, Maghull, Nr. Liverpool, Lancs.
 1935 WARRE, Mrs. PHILIP ; Coppid Hall, Stifford, Essex.
 1952 WASTELL, C. H. ; "Mon Abri," Stapleford Abbots, Essex.
 1932 WATKINS, T. R. HOLMES ; Oronsay, The Ellipse, Griffithstown, Mon.
 1950 WATSON, J. K. ; Doonholm P.O. Box 757, Nairobi, Kenya Colony.
 1950 WATTS, R. A. ; 49 Midland Road, Wellingborough, Northants.
 1913 WAUD, Capt. L. REGINALD, F.Z.S., M.B.O.U. ; Bradley Court, Chieveley, Nr. Newbury, Berks.
 1933 WEAVER, GEORGE, F.Z.S. ; 77 Offmore Road, Kidderminster, Worcs.
 1929 WEBB, P. B. ; Barney's Brae, Randalstown, Co. Antrim.
 1935 WEBBER, LEONARD C. ; 6 Grand View Parade, Epping, N.S.W., Australia.
 1937 *WEBER, ORLANDO F., Jr. ; 22 East 82nd Street, New York, U.S.A.
 1950 WEINMAN, Major A. N., M.B.E., C.M.Z.S. ; The Zoological Gardens of Ceylon, Allan Avenue, Dehiwela, Colombo, Ceylon.
 1951 WELLS, O. N. ; Edenbank Farm, Sardis, B.C., Canada.
 1942 WENKE, FRANCIS L. ; 115 N. 20th Street, Olean, N.Y., U.S.A.
 1952 WEST, A. J. ; 47 Weymouth Street, Leicester.
 1947 WEST, DAVID ; 209 N. 18th Street, Montebello, California, U.S.A.
 1932 WHARTON-TIGAR, Mrs. N., F.Z.S. ; The Highlands, Manston, Nr. Ramsgate.
 1951 WHATLEY, E. C. ; Wonston Manor Cottages, Sutton Scotney, Nr. Winchester, Hants.
 1950 WHEATLEY, Professor JOHN, A.R.A., R.W.S. ; Heathfield House, Windmill Road, Wimbledon Parkside, S.W. 19.
 1950 WHEATLEY, Mrs. GRACE, A.R.W.S. ; Heathfield House, Windmill Road, Wimbledon Parkside, S.W. 19.
 1947 WHEELER, T. E. ; Lynwood, Onslow Avenue, Cheam, Surrey.
 1947 WHEELER, Mrs. T. E., F.Z.S. ; Lynwood, Onslow Avenue, Cheam, Surrey.
 1952 WHITE, B. ; 79 Broad Lane, Brinsley, Notts.
 1953 WHITEHOUSE, N. V. ; 185 George Street, Brisbane, Australia.
 1953 WHITFORD, T. B., F.Z.S. ; Bridge Road, Chessington, Surrey.

- 1923 *WHITLEY, HERBERT, F.Z.S., F.R.H.S., M.B.O.U. ; Primley Hill, Paignton, S. Devon.
- 1950 WHITMARSH, W. N. ; 28b John Street (rear), Porthcawl, Glam.
- 1935 WHITMORE, G. E. ; 168 High Street, West Bromwich, Birmingham.
- 1952 WHITSON, K. V. ; 9 Haig Avenue, Queenstown, South Africa.
- 1930 WILKINS, A. ; Rendcombe, Chesham, Bucks.
- 1947 WILKINS, Miss DORA ; The Manor House, Brize-Norton, Oxford.
- 1950 WILKINS, E. E. ; 60 Brentford Road, Kings Heath, Birmingham 14.
- 1949 WILLEMS, Prof. Dr. A. E. R. ; Montereystaat 24, Ghent, Belgium.
- 1907 WILLFORD, HENRY ; Sans Souci, Havenstreet, Ryde, Isle of Wight.
- 1951 WILLIAMS, Major H. C. ; "Bryn Deri," Penygarn, Pontypool, Mon.
- 1948 WILLIAMS, H. P. ; 2 Burcote Road, Pye Hayes, Birmingham 24.
- 1905 WILLIAMS, SIDNEY, F.Z.S. ; Sea Crest, Nyewood Lane South, Bognor Regis, Sussex.
- 1950 WILLIAMS, T. J. ; Cartref, Sylva Gardens North, Craig-y-Don, Llandudno, N. Wales.
- 1945 WILLIAMSON, T. F. M. ; R.R.I. Saanichton, Vancouver Island, B.C., Canada.
- 1951 WILLIS-FLEMING, Major D. ; 21 Torhill Road, Torquay.
- 1951 WILLMOTT, J. D. ; Box 488, Mount Dora, Florida, U.S.A.
- 1948 WILLISHER, Mrs. G. A. ; 37 Springfield Road, Thornton Heath, Surrey.
- 1950 WILMOT, H., F.Z.S., M.R.I. ; 6 Polperro Mansions, Lyncroft Gardens, London, N.W. 6.
- 1939 WILSON, ALEX M. ; Middlemoor, Presteigne, Radnorshire.
- 1927 WILSON, ANDREW, F.Z.S. ; 233 Argyle Street, Glasgow, C. 2.
- 1948 *WILSON, CALVIN D., M.A. ; Tracy Aviary, Liberty Park, 589 East 13th South, Salt Lake City 4, Utah, U.S.A.
- 1950 WILSON, G. ; Gladstone House, High Street, St. Neots, Hunts.
- 1952 WILSON, T. ; 216 Blockhouse Bay Road, Avondale, S.W. 3, Auckland, New Zealand.
- 1950 WINCH, R. F. ; Queen Charlotte Fisheries, Ltd., 610 Bidwell Street, Vancouver, B.C., Canada.
- 1922 WINTER, DWIGHT ; 1160 Beechwood Blvd., Pittsburgh 6, Pa., U.S.A.
- 1937 WITTING, R. C., F.R.G.S., F.Z.S., M.B.O.U. ; The Gables, West Horsley, Surrey.
- 1951 WITTING, Mrs. R. C. ; The Gables, West Horsley, Surrey.
- 1951 WOOD, Miss G. J. ; Church Cottage, Tarvin, Nr. Chester.
- 1945 WOOD, H. WALLACE ; Oak Hall, Hythe, Kent.
- 1940 WOOD, J. A. ; 68½ Pitt Street, Sydney, N.S.W., Australia.
- 1951 WOODWARD, D. ; 86 Stanstead Road, Hoddesdon, Herts.
- 1903 WORKMAN, WILLIAM H., F.Z.S., M.B.O.U. ; Lismore, Windsor Avenue, Belfast.
- 1952 WORTHEN, G. ; 7500 West 2700 So. Street, Magna, Utah, U.S.A.
- 1945 WRAGG, H. B. ; 131 Berridge Road East, Sherwood Rise, Nottingham.
- 1950 WRIGHT, S. A., F.Z.S. ; 59 Ashridge Gardens, Palmers Green, N. 13.
- 1952 WYLLIE, R., Jr. ; 20 Marchlands Avenue, Bo'ness, West Lothian.
- 1947 YAEGER, LEWIS ; P.O. Box 761, Tempe, Arizona, U.S.A.
- 1952 YARNELL, J. ; Barnack, Nr. Stamford, Lincs.
- 1934 YEALLAND, JOHN ; The Zoological Society of London, Regent's Park, N.W. 8.
- 1932 YOUNGER, Mrs. L. ; 244 Cranmer Court, Sloane Avenue, S.W. 3.
- 1951 ZEORLIN, R. V. ; 308 East Thomas, Seattle 2, Washington, U.S.A.

LIST OF LIBRARIES, SCIENTIFIC INSTITUTIONS, AND
ZOOLOGICAL SOCIETIES WHICH SUBSCRIBE IN ADVANCE
FOR THE *AVICULTURAL MAGAZINE*

- CAMBRIDGE UNIVERSITY ; Department of Zoology, Ornithological Field Station, Madingley, Cambridge.
- CARNEGIE DUNFERMLINE TRUST ; Abbot Street, Dunfermline.
- CHICAGO NATURAL HISTORY MUSEUM ; Roosevelt Road and Lake Shore Drive, Chicago 5, Illinois, U.S.A.
- HARVARD UNIVERSITY ; Museum of Comparative Zoology Library, Oxford Street, Cambridge 38, Mass., U.S.A.
- MCGILL UNIVERSITY ; Redpath Library, McGill University, 3459 McTavish Street, Montreal, P.Q., Canada.
- OHIO STATE UNIVERSITY ; Department of Zoology and Entomology, Botany and Zoology Building, Columbus 10, Ohio, U.S.A.
- QUEBEC ZOOLOGICAL GARDENS ; Charlesbourg, P.Q., Canada.
- ROYAL ZOOLOGICAL SOCIETY OF SOUTH AUSTRALIA ; Zoological Gardens, Adelaide, S. Australia.
- SEATTLE PUBLIC LIBRARY, Seattle 4, Washington, U.S.A.
- SHEFFIELD CITY LIBRARIES ; Central Library, Surrey Street, Sheffield.
- SOCIÉTÉ ROYALE DE ZOOLOGIE D'ANVERS ; 26 Place Reine Astrid, Antwerp, Belgium.
- SOUTHPORT CORPORATION, CURATOR OF ; Hesketh Park, Southport.
- TARONGA ZOOLOGICAL PARK TRUST ; Box 20, P.O. Mosman, Sydney, N.S.W., Australia.
- TORONTO UNIVERSITY ; ROYAL ONTARIO MUSEUM OF ZOOLOGY, 100 Queen's Park, Toronto 5, Ontario, Canada.

THE AVICULTURAL SOCIETY OF NEW ZEALAND

LIST OF AFFILIATED MEMBERS

- BAINTON, A. E. ; 73 Wildberry Street, Woolston, Christchurch, S.E.I., N.Z.
- BLAKEY, H. P. ; Broadway, Newmarket, Auckland, S.E. 1, N.Z.
- COLLINS, Mrs. C. ; 341 South Road, New Plymouth, N.Z.
- DEAL, J. R. ; National Art Gallery and Dominion Museum, Department of Internal Affairs, Government Buildings, Wellington, N.Z.
- HIGGINS, A. ; 4 Fruit Vale Road, New Lynn, Auckland, S.W. 4, N.Z.
- HUTCHINSON, G. ROWLAND ; P.O. Box 770, Auckland, C.I., N.Z.
- IRVINE, Mrs. M. R. ; 21 King Street, Dannevirke, N.Z.
- MACLEAN, T. C. ; (Address unknown).
- MCNEILL, C. ; P.O. Box 267, New Plymouth, Taranaki, N.Z.
- MORAN, H. D. ; 78a Division Street, Riccarton, Christchurch, N.Z.
- PORT, W. J. ; 18 Chaytor Street, Palmerston North, N.Z.
- RANSTON, Dr. H. ; 34 Alexis Avenue, Mt. Albert, Auckland, S.W. 2, N.Z.
- REID, G. ; "Grassington," Rotherham, N. Canterbury, N.Z.
- ROBINSON, J. W. ; 2 Neill Street, Green Island, Otago, N.Z.
- TAYLOR, F. G. ; Kairaki Beach, Canterbury, N.Z.
- TYRRELL, R. J. ; 270 Kaikorai Valley, Dunedin, W. 2, N.Z.

THE AVICULTURAL SOCIETY OF SOUTH AUSTRALIA (ADELAIDE)

LIST OF AFFILIATED MEMBERS

- CLYMA, M. ; 28 Avenue Road, Frewville, South Australia.
DUNSTONE, Dr. L. J. ; Malvern Avenue, Malvern, South Australia.
FECHNER, C. ; 29 Woodville Road, Woodville, South Australia.
GEORGE, F. ; 17 Rosetta Street, Collinswood, South Australia.
HAMILTON, Dr. Wm. ; 4 Portrush Road, Marrayatville, Adelaide, South Australia.
HUTCHINSON, W. J. ; Coulis Road, Athelstone, South Australia.
JUTTNER, Dr. F. ; Tanunda, South Australia.
MANFIELD, H. ; c/o Zoological Gardens, Adelaide, South Australia.
McKECKNIE, R. ; 6 Eric Street, Plympton, South Australia.
SEPPELT, OSCAR ; 57 Northumberland Street, Tusmore, Adelaide, South Australia.
SEWELL, H. S. ; 12 Stannington Avenue, Toorak East, Adelaide, South Australia.
WRIGHT, R. ; Langdon Avenue, Clarence Park, South Australia.

Rules of the Avicultural Society

Last amended, 12th March, 1952.

1.—The name of the Society shall be THE AVICULTURAL SOCIETY, and its object shall be the study of British and Foreign Birds in freedom and in captivity. Poultry, Pigeons, and Canaries shall be outside the scope of the Society. The year of the Society, with that of each volume of the Society's Magazine, which shall be known as the AVICULTURAL MAGAZINE, shall commence with the month of January and end on the 31st December following.

2.—The Avicultural Society shall consist of Ordinary, Life, Honorary Life Members, and Honorary Fellows, and the last shall be restricted in number to ten, and be elected by the Council.

3.—The Officers of the Society shall be elected, annually if necessary, by Members of the Council in the manner hereinafter provided, and shall consist of a President, one or more Vice-Presidents, a Secretary-Treasurer, an Assistant Secretary, an Editor, and a Council of fifteen Members. The President, Vice-Presidents, Secretary-Treasurer, Assistant Secretary, and Editor shall be *ex officio* Members of the Council.

4.—New Members shall be proposed in writing, and the name and address of every person thus proposed, with the name of the Member proposing him shall be published in the next issue of the Magazine. Unless the candidate shall within two weeks after the publication of his name in the Magazine, be objected to by at least two Members, he shall be deemed to be duly elected. If five Members shall lodge with the Secretary objections to any candidate he shall not be elected, but the signatures to the signed objections must be verified by the Scrutineer. If two or more Members shall object to any candidate the name of such candidate shall be brought before the Council at their next meeting, and the Council shall have power to elect or to disqualify him from election.

5.—Each Member shall pay an annual subscription of £1, to be due and payable in advance on the 1st of January in each year; and, on payment of the subscription shall be entitled to receive all the numbers of the Society's Magazine for the current year. Life Member's fee, £15.

6.—Members intending to resign their membership at the end of the current year of the Society are expected to give notice to the Secretary before the 1st of December, so that their names may not be included in the "List of Members", which shall be published annually in the January number of the Magazine.

7.—The Magazine of the Society shall be issued on or about the first day of every month, and forwarded, post free, *to all the Members who shall have paid their subscriptions for the year ; but no Magazine shall be sent or delivered to any Member until the annual subscription shall have reached the hands of the Secretary-Treasurer.* Members whose subscriptions shall not have been paid as above by the first day in November in any year shall cease to be Members of the Society, but may be readmitted, at the discretion of the Council, on payment of the annual subscription.

8.—The Secretary-Treasurer, Assistant Secretary, and Editor shall be elected for a term of five years, and, should a vacancy occur, it may be temporarily filled by the Executive Committee (see Rule 10). At the expiration of the term of five years in every case it shall be competent for the Council to nominate the same officer, or another Member, for a further term of five years, unless a second candidate be proposed by not less than twenty-five Members of at least two years' standing, as set forth below.

In the November number of the Magazine preceding the retirement from office of the Secretary-Treasurer, Assistant Secretary, and Editor, the Council shall publish the names of those members whom they have nominated to fill the vacancies thus created ; and these Members shall be deemed duly elected unless another candidate or candidates be proposed by not less than fifteen Members of at least two years' standing. Such proposal, duly seconded and containing the written consent of the nominee to serve, if elected, in the capacity for which he is proposed, must reach the Secretary on or before the 15th of November.

9.—The Members of the Council shall retire by rotation, three at the end of each year of the Society (unless a vacancy or vacancies shall occur otherwise) and three other Members of the Society shall be recommended by the Council to take the place of those retiring. The names of the three Members recommended shall be printed in the November number of the AVICULTURAL MAGAZINE. Should the Council's selection be objected to by fifteen or more Members, these shall have power to put forward three other candidates, whose names, together with the signatures of not less than fifteen Members proposing them, must reach the Secretary *by the 15th of November.* The names of the six candidates will then be printed on a voting paper and sent to each Member with the December number of the Magazine, and the result of the voting published in the January issue. Should no alternative candidates be put forward, in the manner and by the date above specified, the three candidates recommended by the Council shall be deemed to have been duly elected. In the event of an equality of votes the President shall have a casting vote.

If any Member of the Council does not attend a meeting for two years in succession the Council shall have power to elect another Member in his place.

10.—Immediately after the election of the Council that body shall proceed to elect three from its Members. These three, together with the Secretary-Treasurer, Assistant Secretary, and Editor, shall form a Committee known as the Executive Committee.

The duties of the Executive Committee shall be as follows :—

(i) In the event of the resignation of any of the Officers during the Society's year, to fill temporarily the vacancy until the end of the year. In the case of the office being one which is held for more than one year (e.g. Secretary-Treasurer, Assistant Secretary, or Editor) the appointment shall be confirmed by the Council at its next meeting.

(ii) To act for the Council in the decision of any other matter that may arise in connection with the business of the Society.

The decision of any matter by the Executive to be settled by a simple majority (three to form a quorum). In the event of a tie on any question, such question shall be forthwith submitted by letter to the Council for their decision.

The Executive shall not have power

(i) To add to or alter the Rules ;

(ii) To expel any Member ;

(iii) To re-elect the Secretary-Treasurer, Assistant Secretary, or Editor for a second term of office.

It shall not be lawful for the Treasurer to pay any account exceeding £10 unless such account be duly sanctioned by another Member of the Executive.

It shall be lawful for the Secretary-Treasurer or Editor to pledge the Society's credit for a sum not exceeding £100.

Should a Member wish any matter to be brought before the Council direct such matter should be sent to the Secretary with a letter stating that it is to be brought before the Council at their next meeting, otherwise communications will in the first place be brought before the Executive.

A decision of a majority of the Council, or a majority of the Executive endorsed by the Council, shall be final and conclusive in all matters.

11.—The Editor shall have an absolute discretion as to what matter shall be published in the Magazine (subject to the control of the Executive Committee). The Secretary and Editor shall respectively refer all matters of doubt and difficulty to the Executive Committee.

12.—The Council (but not a committee of the Council) shall have power to alter and add to the Rules, from time to time, in any manner they may think fit. Five to form a quorum at any meeting of the Council.

13.—The Council shall have power to expel any Member from the Society at any time without assigning any reason.

The Society's Medal

RULES

The Medal may be awarded at the discretion of the Committee to any Member who shall succeed in breeding, in the United Kingdom, any species of bird which shall not be known to have been previously bred in captivity in Great Britain or Northern Ireland. Any Member wishing to obtain the Medal must send a detailed account for publication in the Magazine within about eight weeks from the date of hatching of the young, and furnish such evidence of the facts as the Executive Committee may require. The Medal will be awarded only in cases where the young shall live to be old enough to feed themselves, and to be wholly independent of their parents. No Medal can be given for the breeding of hybrids, or of local races or sub-species of species that have already been bred.

The account of the breeding must be reasonably full so as to afford instruction to our Members, and must appear in the AVICULTURAL MAGAZINE before it is published or notified elsewhere. It should describe the plumage of the young, and *be of value as a permanent record of the nesting and general habits of the species*. These points will have great weight when the question of awarding the Medal is under consideration.

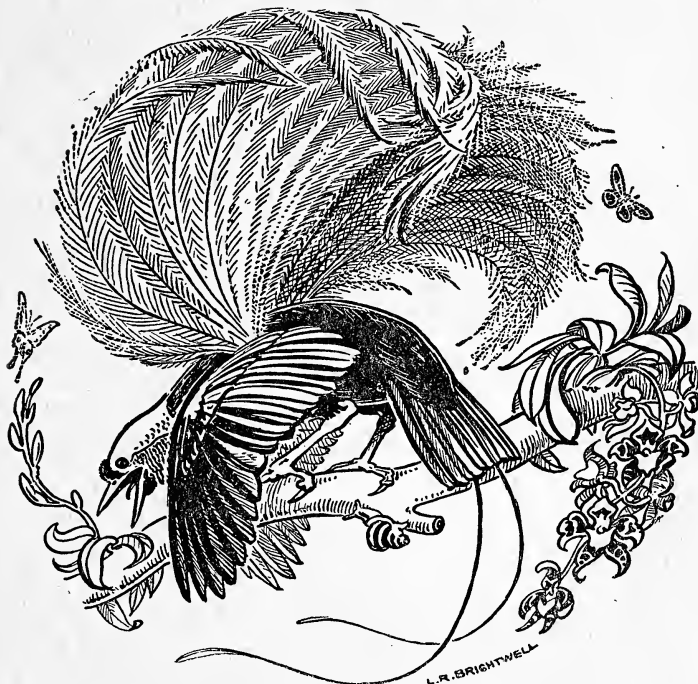
In every case the decision of the Committee shall be final.

The Medal will be forwarded to each Member as soon after it shall have been awarded as possible.

The Medal is struck in bronze (but the Committee reserve the right to issue it in *silver* in very special cases) and measures $2\frac{1}{2}$ inches in diameter. It bears on the obverse a representation of two birds with a nest containing eggs, and the words "The Avicultural Society—founded 1894". On the reverse is the following inscription: "Awarded to [*name of recipient*] for rearing the young of [*name of species*], a species not previously bred in captivity in the United Kingdom."

The Council may grant a special medal to any member who shall succeed in breeding any species of bird that has not previously been bred in captivity in Europe.

AVICULTURAL MAGAZINE



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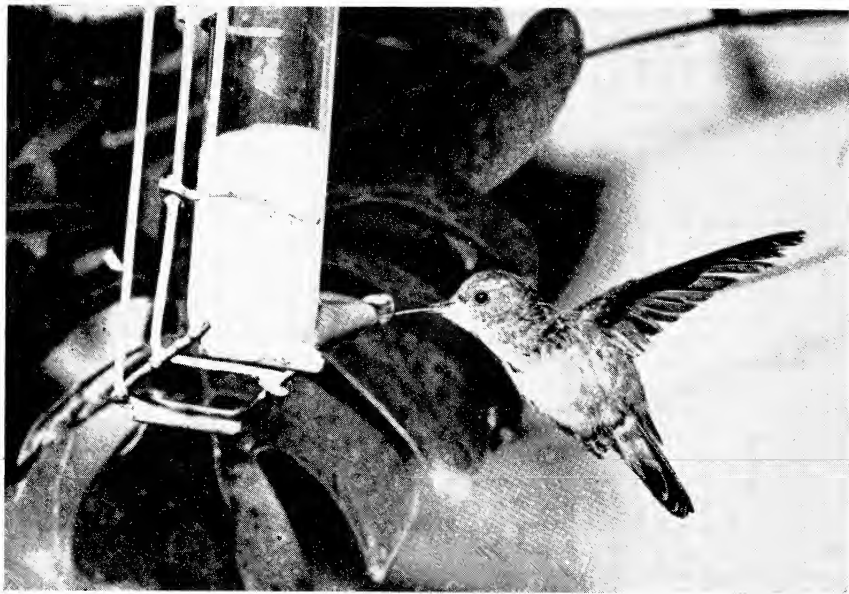
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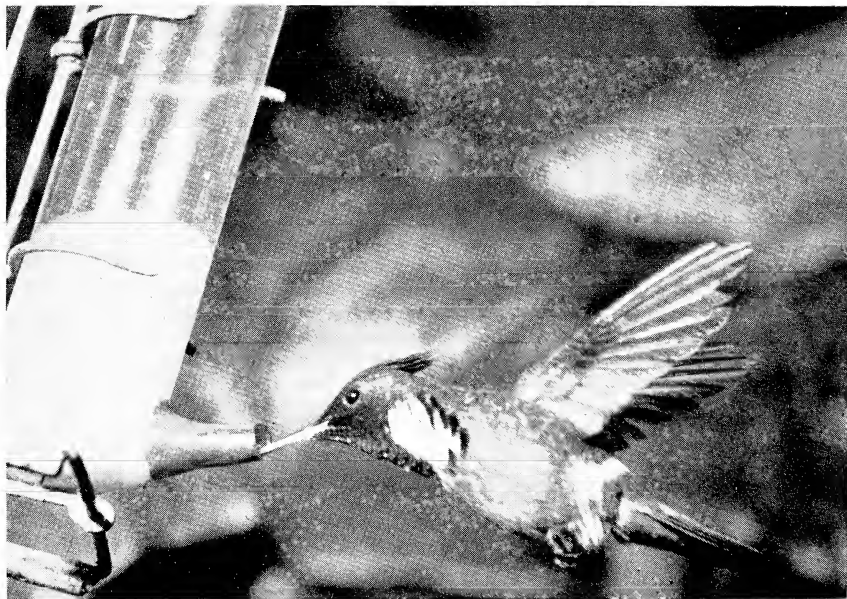
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Female of *Hylocharis cyanea*.



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Frontispiece.

Male of *Lophornis magnificus*.

[A. Reventlow

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JANUARY-FEBRUARY, 1953

EXPERIENCE DURING FIFTEEN YEARS WITH THE FEEDING AND MANAGEMENT OF HUMMING BIRDS IN CAPTIVITY

By AXEL REVENTLOW (Managing Director of the Zoological Gardens,
Copenhagen, Denmark)

Since we got our first Humming Birds in May, 1935, these small birds have been one of our greatest attractions. Many people have come to our Zoo specially to see the Humming Birds, and on busy days one or two keepers constantly have to regulate the stream and to make the crowd move on. This interest has not diminished since the arrival of the first birds, and in this connection I should like to mention that a gentleman from England, who had never before seen live Humming Birds, was so enthusiastic about the birds that he at once cancelled his air passage in order to study them for a whole day.

In our bird-house at present we have a stock of about 700 birds of more than 300 different species, but the Humming Birds still prove the principal attraction. On the 1st August, 1952, we had 40 Humming Birds of eight or nine different kinds.

It is very important that the Humming Birds should be in good condition on arrival. According to my experience, the last consignments to Europe of these birds have not, by far, been of the same good quality or consisting of as many different species as before the war. Then the birds were brought to Europe by clever and experienced men such as Charles Cordier and the German, Dänisch, who generally caught the birds themselves and had time and patience enough to care for and feed them, and to clean the cages properly during the journey from Brazil, a voyage of about 10–12 days by the great passenger liners. The Humming Birds are now coming to Europe by air, and though this means a quicker journey, it involves the great drawback that the crew of the aeroplanes only in very few cases shows the least interest in the welfare of the birds. During the last few years we have several times got collections of Humming Birds

consisting of big and very small ones all mixed together, and consequently the small ones were constantly chased away from the feeding-glasses so that many of them starved to death during the journey. The cages were badly constructed and almost impossible to keep clean. On arrival at our airport late in the evening many of the birds were lying on the bottom of the cage, in a very deplorable state. They were so soiled that they stuck together in their own fæces, and in the food spilled from the feeding-glasses. My wife and I had to wash every single bird several times with cotton-wool in lukewarm water, dry them by means of a heating lamp, and feed them by hand almost the whole night.

Immediately after the arrival of a collection of Humming Birds it is advisable to put them into as many small cages as possible, so that every bird can rest, and drink as much as it needs from the bottles. It is very important to use a great number of feeding-glasses and to place them in the cages a good distance apart. Usually I divide the birds up into at least three different lots according to their size. Every lot is then divided into smaller lots according to their condition. The best specimens are placed together and can, as a rule, get along very well when provided with sufficient light, heat, and food. The next lot, which is weaker, must generally be fed by hand, and the last, including quite exhausted birds and some without wing-feathers which are consequently unable to fly up on the perches, need to be constantly fed by hand. The birds should be taken by the beak and held between the thumb and the third finger of the right hand; the forefinger should be placed on the back of the bird so that its wings are sticking out between the fingers and can be moved when the beak of the bird is put into the spout of a feeding-bottle which is held in the left hand. The beak should not be put too far into the liquid and care must be taken not to spill any of the liquid on the feathers.

It is quite astonishing to observe the vitality of these small creatures, in many cases weighing only $1\frac{1}{2}$ to 4 grams. Very often I have seen them lying stiff and motionless with closed eyes and expanded wings on the bottom of the travelling boxes, but putting them into my breast or trouser pockets I soon found them beginning to stir the wings and, shortly after having been fed by hand, they sat on the perches or were flying around in the cage as if nothing had happened to them. After the arrival of new birds we generally do not put out the electric light at night for about a week so that they are able to find the feeding-glasses and to drink whenever they like.

At present our Humming Birds are placed in five cages or aviaries, two of them being 145 cm. long, 135 cm. deep, and 180 cm. high. The medium-sized cages are 325 cm. long, 235 cm. deep, and 290 cm. high—and the biggest one is 1,250 cm. long, 500 cm. deep, and 400 cm. high. The Humming Birds are generally put together according to

their size, so that the smallest species are preferably placed in the smallest cages. It is, however, remarkable to note that a number of Mosquito Humming Birds, White-bellied Humming Birds, and Swallow-tailed Humming Birds, the whole summer have got along splendidly in the biggest cage together with Sunbirds, Sugarbirds, Tanagers, and other gaily coloured birds. At the end of this summer, when the Humming Birds from the biggest of the above-mentioned cages had to be removed, the plumage and general condition of these birds were remarkably better in comparison with those from the smaller cages.

All cages are furnished with live plants and flowers. The biggest one, containing also a number of alligators and a little pond is, by means of palms, dracenaes, sansiviera, and other plants, arranged as an artificial tropic scene. The most suitable plants for the small cages are stone-ferns as for instance *Nephrolepis whitmanni*, Begonia, Erica, *Solanum capistratum*, *Cobaea*, and *Monstera deliciosa*, the long soft aerial roots which are excellent as resting places for the Humming Birds. The bottom of the cages is covered with brick-coloured gravel, moss, and grass. The moss and grass have to be renewed rather often lest they should decay in the humid atmosphere and thus foul the air in the cages. All plants are sprayed every day with lukewarm water which is used by the birds for drinking and bathing purposes.

It is wonderful to see the small energetic birds sitting on the green leaves and rubbing the water into their feathers. As the Humming Birds have never been seen sitting on the bottom of the cages, we have fixed some artificial leaves made of green rubber to the plants. These artificial leaves are somewhat the shape of dishes, so they serve both as drinking vessels and bath tubs. The keeper enters the cages several times daily in order to clean the leaves and to give fresh food. If we want to catch any particular Humming Bird we spray it with a syringe until it is soaked with water and falls to the bottom of the cage, when it is easily caught.

It is very important that the temperature of the cages is as constant as possible; it may, however, be a little lower at night. I consider a temperature of 22–24° centigrade as best during the day, and 18–20° centigrade at night. By accident the temperature has sometimes fallen to 13–14° centigrade at night, but the birds have never come to any harm.

The cages have to be supplied with plenty of fresh air. The Humming Birds do not feel comfortable if the air is constantly too moist or too foul, owing to decaying plants or moss. Preferably less heat and more fresh air!

Our Humming Birds cages are heated by electricity, and we use a varying number of stoves according to the outside temperature and the sun: for example, if the sun is shining many hours on the

glass roof of the bird-house, we naturally put out some of the electric stoves. We also have to take into consideration the heat from the lamps alight in the cages. The neon tubes are placed in such a way that the birds are illuminated from above, below, and from the sides. It would be an advantage if the cages could be placed in a rather low place so as to be convenient to the human eye. Having been forced to use some existing cages, we have not yet been able to solve the problem of illumination to our entire satisfaction, but this question will be taken up soon. We have never noticed that the Humming Birds, or their eyes, got damaged by the heat of the lamps or the strong light. They are able to look directly towards the sun without being dazzled. In the very few cases when a Humming Bird has flown against the glass front of the cage, it was being chased by other male birds.

As everybody knows, the Humming Birds are by nature very quarrelsome and unsociable among themselves. I have, for instance, never seen two of them sitting close together as many other small birds often do. Owing to their bright colours we prefer to keep male birds, so it is inevitable that some quarrelling takes place and some of them drive others away from certain feeding bottles which they consider to be their own property. It is well known that Humming Birds in a wild state are birds which energetically and constantly keep others away from their special territory. Every day at certain times they are to be found on the same perches, generally on a bare twig and in an open place. For this reason, we have put a considerable number of bare branches and twigs into our cages, and these are constantly being used by the birds. New Humming Birds always require a certain space of time before choosing their special sleeping places, but after this they can be found every night at the same place. The newcomers are usually chased by the old ones; these are generally stronger than the others and are usually flying better. We therefore temporarily remove the most pugnacious of the old birds until the new ones become acquainted with the cages and the feeding-bottles.

During the dark season we constantly have the artificial light burning in the cages of the Humming Birds. In the evening most of the lamps are put out and only a few below the ceiling remain burning for a short time, and these are then gradually put out in the course of 10-15 minutes by means of a special dimming switch made for this purpose. Before total darkness sets in, we count the birds through the outer pane of glass. If any of them still prove to be restless, we must wait and put out the last light, when all are sitting quietly at their sleeping places. Usually the Humming Birds fall asleep very quickly, and when healthy they sit in a very characteristic attitude with the wings pressed very close to the body which is practically resting on the

twig, with the beak pointing upwards in an angle of about 45° . When sick or exhausted a Humming Bird will put its beak more or less vertically in the air during the sleep, i.e. that means considerably more than 45° . The more sick it is, the more it raises the beak.

The birds have a very tight grip on the twigs, and are almost impossible to shake off. Having had the opportunity to study the Humming Birds for many years, I have not yet seen any of them "putting their heads under their wings" as many other birds do when sleeping.

During sleep the body-temperature of these birds, which is normally about 42° centigrade, drops considerably. Their consumption of oxygen is very reduced in this condition which can practically be called a state of torpor. I beg to refer to an article by Dr. F. W. Braestrup in the Danish Salmonsens's Cyclopædia, where he quotes an article by Oliver P. Pearson in "The Condor", vol. 52, page 145, 1950: "By Hummers the amount of oxygen varies throughout the twenty-four hours. The Humming Bird spends the night in a lethargic slumber during which the metabolism descends to about $\frac{1}{10}$ of the normal one. Some birds could not exist at all without becoming torpid every night. The very small kinds of Humming Birds have a metabolism of such a rapidity that they could not take sufficient reserves of nourishment to survive a night without eating, if the expenditure of energy at night were normal. This is a consequence of their very modest size."

The Humming Birds have a fantastic energy and endurance which is illustrated by the following. In *Birds of America*, page 183, ii, T. Gilbert Pearson writes among other things: "These Humming Birds winter to a limited number in South Florida. The bulk of them, however, go farther south. In the autumn nights the little birds launch out across the Gulf of Mexico straight for Yucatan or Central America. This incredible journey, not less than 500 miles ($937\frac{1}{2}$ km.) is made without a single stop for food or rest."

The Humming Birds are in their own way very intelligent and independent animals. So they are very often in a surprising way able to get along in an unforeseen situation. Their sense of direction is fantastic, and they very soon get accustomed to new surroundings and new conditions. They do not show any fear of the keeper going into their cages every day to feed them and to clean the glass. Their senses are developed to an astonishing degree: the sight, hearing, and as I think also, to some extent, the sense of smell, are excellent.

In order to be sure that all the birds get sufficient to eat, we always place a great number of feeding-glasses in our cages. Some of them are hidden behind the big green leaves, and these glasses are of special importance to the weaker birds and the newcomers, which are very often chased by the other ones. Each glass is suspended by a specially

constructed holder and contains about 40 grams of liquid. According to our experience every Humming Bird drinks on an average between 17 and 15 cm³ of liquid in the course of twelve hours. Taking into consideration the weight of the birds (1½–4–5 grams), this seems quite fantastic.

The glasses are furnished with a soft rubber cork and both this and the glass must be kept spotlessly clean. The birds are fed twice a day.

The *Morning Food* (at 8 o'clock) for forty birds consists of 1 litre of water, 4 table-spoonfuls of honey (about 125 g.), 3 table-spoonfuls of condensed milk with sugar (about 40 g.), 1 table-spoonful of Mellin's Food (about 10 g.), and a pinch of meat extract with salt (about 3 g.). To this quantity is added 5 small drops of A and D Vitamins. Each drop contains 750 units of A and 125 units of D vitamins. The vitamins should be stirred very carefully in the condensed milk and a little hot water; the rest of the water (about 750 g.) should be lukewarm.

At about 4.30 in the afternoon (on hot days a little earlier), the morning food is replaced by the *Night Food*, which does not become sour even if remaining 12 hours or longer in the cages. The night food consists of 1 litre of lukewarm water, 5 table-spoonfuls of honey (about 160 g.) stirred and mixed up with the contents of 1 ampoule 10 mg. of vitamin B (chlorhydrate of thiamine), and 1 ampoule of 100 mg. vitamin C (ascorbic acid).

The recipe of this vitamin food has been given by Mr. Charles Cordier in the AVICULTURAL MAGAZINE, Vol. 58, No. 4, page 143, July–August, 1952, in an article entitled "A Better Way to feed Humming Birds". In the Copenhagen Zoo we have, however, with what I should call fairly good results, been using for many years what Cordier in his article calls "an antiquated formula" which contains less honey but some sugar and 2 tablespoonfuls of Mellin's Food. We have now started *gradually* to reduce the quantity of Mellin's Food and to increase the quantity of honey. There are, however, two things Mr. Cordier does not mention in his article: fresh water and the provision of live insects. As most Humming Birds in a wild state eat quite a lot of small live insects, etc., I attach great importance to this kind of food. In 1934 I brought along with me about 25 live fruit-flies (*Drosophila repleta*) from the Zoological Garden in Berlin and having later established a special fly-farm we have now reared millions of these small insects. We catch them in a net and release them alive to the birds which catch them in the air and eat them.

All our Humming Bird cages are of course made in a way to prevent the small flies from escaping.

During the years in which we have kept Humming Birds we have several times had to deal with severe invasions of red ants (*Mono-*

morium pharaonis) in our cages. These small pests climbed from the walls on to the branches and from these down along the suspended feeding-glasses sometimes in such numbers that the spouts of the glasses were nearly stuffed up. We found that the Humming Birds did not like this and consequently to some extent kept away from the liquid food. By suspending the feeding-glasses in yet another piece of steel-wire which goes through a small glass tube almost filled with ordinary water and with a cork at the bottom, we have now been able to stop this plague. The red ants cannot now get at the liquid food and for this reason leave the cage in search of other food.

Before making use of our little "invention" the average quantity of liquid food consumed by each Humming Bird during its twelve feeding hours was 14.655 cm^3 . but afterwards 14.815 cm^3 . This shows an average difference of 0.16 cm^3 . for each bird during its twelve hours of feeding and besides it clearly shows how even small things can be of importance in connection with the feeding and management of difficult or delicate animals in captivity.

Humming Birds in captivity have to be constantly and carefully examined. The claws should be cut when too long, as otherwise the birds do not fly as much as they should. It has happened now and then that some of the birds get a kind of paralysis of the tongue which then cannot be withdrawn but remains more or less protruding from the beak. Even if the tip of the tongue is quite dry, the bird is able to live for quite a long time. I have been told that this is due to the bird having caught a cold. I don't understand, however, how this suddenly can happen to birds living in such a steady temperature. We have tried to cure such a case by giving the bird aureomycin dissolved in the food, but so far the result has not come up to our expectations.

How long do the Humming Birds live in captivity?

Unfortunately, I have only very little information from other Zoological Gardens, and can only say that we have lost quite a lot of Humming Birds since the war because they arrived in a miserable condition. I have not yet had time to treat this matter statistically, but I am able to state that 28 birds or more than 38 per cent of our first stock (from 17th May, 1935, till 5th June, 1945) consisting of 74 Humming Birds lived more than one year, 8 birds or 11 per cent lived more than two years, and 5 birds or 7 per cent lived more than three years, 1 bird lived almost four years, and finally 1 bird eight years less thirteen days.

For further details, I should like to refer to my articles in the German periodical *Der Zoologische Garten*, 1941, vol. 13, page 167-178, and the AVICULTURAL MAGAZINE, Vol. 54, No. 3, pages 69-79.

1952 BREEDING RESULTS AT LECKFORD

By TERRY JONES (Leckford, Hants, England)

It has been a fairly good season here, but when a collection is as big and as varied as this one it is almost impossible to have a good season with every kind of bird.

The Parrot family has done badly. We had a good pair of Princess of Wales who reared young every year. This year the pair bred satisfactorily, hatching four young and rearing three, all strong birds. One night there must have been a cat or something on the aviary roof. The aviary is 72 feet long, and the birds have distance enough to acquire some speed, enough speed with which to kill themselves against the wire, and unfortunately this is what happened, and now we have the mother and one youngster only.

Incidentally, some people may not know that this species is one of the few Parrakeets larger than a Grass Parrakeet which is not destructive to shrubs. The Stanley Parrakeets excelled themselves this year, laying six eggs and hatching and rearing one.

Last year we reared a number of Fischer's Lovebirds, and I decided to keep them to try to build up a good breeding stock! Even if I could sell any of them to-day, I should hardly get any more for the whole lot than I could have got for one pair of young birds last year. This species bred quite well again this year.

And so we come to the Peach-faced Lovebirds. Here again we are in trouble. In 1950 we bred some nice young birds from a very old pair which died last year. Then in *Cage Birds* in the autumn of 1950 I saw an advertisement offering three young unsexed Peach-faced for sale. These I bought, and after marking them and our own three by cutting a few feathers on the back of the head of one, shoulder of another, tail of a third, and so on, we turned the six out together. The food room window overlooks their outdoor flight, and the idea was to watch the birds unobserved by them, and to note which fell in love with what. It seemed a foolproof way of sexing these difficult birds. Mrs. Milligan, whose charges they are, spent days, weeks, and months watching them. They got along fine, and were nearly always in pairs, but the snag from our point of view was that *A* who is sitting with *B*, was sitting an hour ago with *C*, and has in fact sat with the rest. My idea of a pair is the same as Noah's, but their idea of a pair was two birds, simply that!

The summer of 1951 they spent all together. We never saw any bird feed any other. We put up enough boxes to look like a "Development Area" and supplied willow and lime boughs. The birds had a grand time stripping the boughs and in clambering in and out of boxes, but no material was carried into the boxes. This spring, 1952, Mrs. Milligan had decided that *A* was now paired to *B* and *C* to *D*,

so they were put in separate aviaries. "They were not hatched till August," we told each other, "and were too young to breed last year." But nothing has happened at all this year till the other day, late October, when *B* was seen to stuff a splinter in her rump feathers and fly to a box. These boxes had not been removed, as no one seemed in danger of egg-binding. However, they were promptly removed and in early November *B* laid an egg from a perch. At last we know the sex of one of the party, and now we must wait till 1953. This has cheered us up so much that Mrs. Milligan has been rash enough to say that she is certain that *D* also is a hen. Having spent two seasons wondering whether all were males, I now am wondering whether perhaps all are females. We tried sexing the birds by the width between their pelvis bones, but anyone who has kept poultry knows how much the width varies according to the state of the bird's ovaries.

In Nyasa Lovebirds we had an old bird and three youngsters, which came from the Duke of Bedford. One bird died during the winter. The three between them built two nests, but forgot to lay. I must try to get some more of these nice little Lovebirds, and see whether we can pair them up more successfully than we have the Peach-faced.

The two Touracous we know are both hens and, as they do each year, both laid and sat on their eggs. One of them is a delightfully tame bird who has been here since 1938. The Sun Bittern, a charming small owl from New Caledonia, or somewhere like that, are both pre-war birds and continue to thrive, and so do the two cock Wonga-wonga Pigeons, also pre-war birds.

The breeding results amongst the Pheasants is also mixed. We will start with the bad news. No. 1 pair, Monals, had been together for ten years, and were a very good breeding pair. Without any warning the cock murdered his wife. No. 2 pair : Again a good breeding pair. Something scared the hen one day in early spring, and she was found limp and warm with a smashed skull. Pair No. 3 : A cock which was very tame and a young two-year-old hen, daughter of one of the above, who was laying for the first time. She laid just one clutch of eggs. Six, I think, were hatched and five reared. These five are possibly all cocks !

Besides the above we have a very nice 1951 cock we had kept as a store bird, intending to reserve him a mate from this year's crop.

Chinquis Peacock Pheasants are another poor patch. We lost three old birds ; two of them the best pair we ever had, were well pre-war. But we have some nice young pairs, so next year we should be all right. Only two young were reared this year.

Elliotts were new birds. The cock went into a moult as the hens started to lay. Only two eggs hatched, and these proved to be a pair, but the cock unfortunately, though a very vigorous bird, has bad feet.

A young pair of Grey Jungle Fowl were also newcomers. The cockerel crowed day and night, particularly at night. A cheerful guy, bred from American stock, he shouted his curious call which sounded to me like "Chum—hi-yeah! hi-yeah—chum!" He had ceased crowing when his little hen eventually laid five eggs which proved clear. Eight young Brown Crossoptilons were reared from one young pair; the second pair did not breed. Incidentally, our males are spurred, as was the pre-war European stock. Twenty-three Mikado were reared, fine birds, but I am afraid a rather henny lot; 16 Temmincks Tragopans; 16 Blue Crossoptilons, 15 Swinhoes, 11 Edwards, and 27 Amherst.

Swans. The old female Black Swan is at present a widow, and having a well-earned rest from child rearing. She and her mate, who came here as adults in 1937, have bred continuously ever since, not quite managing three broods a year. They have hatched cygnets in every month of the year, and have never lost a cygnet. She has been single since February, but a mate should arrive soon. Her daughter is due to start breeding next spring. The Whooper female is a failure in that she prefers human society to Swan's. She lays every year between eight and fourteen eggs upon which she dutifully sits. Unfortunately, she almost always forgets that male Swans have a small part to play. Only twice has she had a family, some years ago she had two, and now she has a ewe lamb. I saw her bring this one to the water. The father was delighted, and thinking he was going to play the male Swan's role of guard and guide, he swam to meet his family. He was promptly seized and thoroughly beaten up. Swans apparently suffer from a social handicap which forbids a chap to thrash his wife, however badly she behaves. He spent most of the subsequent weeks standing on the bank. He is now suffered within the family circle, but is hardly made welcome.

The Black-necked Swans are immature, or rather the female is. We have three males and one female at present.

Geese. Six Greater Snow goslings were reared from our old Goose, who must by now be the ancestress of most of the European stock, and of quite a few of the American. Two Emperor, 4 Ross, 3 Barhead, 4 Redbreast, 8 Magellan, 6 Ashyhead, 10 Ruddyhead were reared. The Abyssinian Bluewinged let me down. I acquired a completely unrelated gander from the Severn Wildfowl Trust, and paired him to a goose who has laid each year till this year. The gander never came into full breeding condition, and so she did not lay. I am hoping to make him madly jealous next year by giving him suitable neighbours.

Sheld-Duck. Nine Radjah were reared, also fifteen Ruddy and about the same number each of Common and South African. The Red-billed Pintail laid, but her pre-war mate was beyond breeding age. We have now got a nice young male bred this year at Slimbridge.

We have been lucky in breeding each year for several years now a species of waterfowl which either has not been bred previously or has not been bred for many years as in the case of the Marbled Teal. This year it was the Philippine Duck, *A. luzonica*.

The Severn Wildfowl Trust very kindly lent us their pair on breeding terms. This species was well illustrated in the AVICULTURAL MAGAZINE for Jan.-Feb., 1952. The male and female are similar in colour, the body soft greyish stone, the neck and face a bright rusty buff, top of the head and a broad eye streak are black, bill blue. It is a handsome species, and in my opinion competes with the Spotbill for second place in the Mallard beauty competition. The pair here were very peaceful and I never saw the drake take the slightest notice of any other species except of Mallard drakes, and to these he objected very strongly. The drake's call is more drawling than a Mallard's. He chatters very little to his duck or she to him. Her call is very similar to a wild duck's. The drake's display seems much simplified. The only form I have so far seen is what I call the fast-swimming display. In this, like the Yellowbill drake, he swims fast either ahead of his duck or round her; his body is elongated, and the base of his neck awash, the head erect and jerked backwards and forwards. The display is probably the same as the Yellowbills, but the above is all I have seen so far. The duck courts him as does a Mallard female her drake, but less violently, less often, and with far less chatter. Mating is the same as the Yellowbill. The duck's first nest was made in some rank grasses, and was a substantial affair, so much so that the day the first egg was laid, 7th May, I was passing the nest, which I already knew of, and a man who was nest-hunting nearby said: "There's an egg in that scrape by the stick in the top block." "What colour is it?" "Greenish." I presumed it was a Red-crested Pochard's, and did not go to collect it till after lunch, when the egg had vanished. I put a dummy in the nest and, at a distance of about three feet, completely encircled it with a narrow band of kreosote. A good way of protecting a nest from ground vermin. No sniffer will cross the band. The following morning I looked first thing. The dummy was there and beside it an egg of the palest eau-de-nil, almost white. The egg was of normal shape, and between a Shoveler's and a Red-crested Pochard's in size, but when compared with these it was paler and the colour very clean, not muddy as are the other two. Dr. Ripley describes his ducks' eggs as very round. I think all species of duck, tree duck excepted, tend to lay a normal shaped egg, but individuals vary greatly. One of my Shovelers lays sausage-shaped eggs, while the other lays normal ones; both hatch equally well. Ten eggs including the missing one were laid on consecutive days. Down was very like the Common Pintails. Incubation 25-26 days. The ducklings on hatching were comically like their parents in design. The body colour was olive,

vaguely showing the Mallard family flank and hip markings, but the necks and faces were bright yellow plus dark eye streak and cap as in the adults. In the first plumage the head markings seemed identical to the adult plumage, but the body plumage lacked the grapelike bloom of the adult. They grew quickly, and were easily reared. The old duck made a second nest under a Guelder rose bush. The nest was again a bulky affair, composed chiefly of sycamore leaves which had lodged under the bush. She laid seven eggs, and then had some internal trouble, failed to lay the eighth, and was dead by 10.30 a.m. We removed this egg from her body, but it was the only egg which failed to hatch. Fifteen ducklings were reared to maturity.

The little American Ruddy Duck laid well ; her extraordinary eggs, almost as big as a Sheld-Duck's, were of the same lovely shagreen texture as the Black Swan's.

Heartbreaking creatures to rear under a hen, because they can barely walk, and will only feed in water. They won't leave their mother's flanks, and she would not swim ! However, we eventually reared four, all females. Next year we hope to do better now we know what we are in for.

* * *

BREEDING NOTES 1952 AT WOBURN

By THE DUKE OF BEDFORD (Woburn, Beds, England)

The breeding season of 1952 produced, on the whole, rather more than the average crop of troubles and disappointments. March went out like a lion after deceptively lamb-like behaviour earlier. As a result both my hen Princess of Wales Parrakeets got egg-bound. One died later of another complaint, and the other did not nest a second time. The eggs, given to Rock Peplars, failed to hatch. Later in the year I also lost one of my cocks from a mysterious injury.

The hen Crimson-wing of the breeding pair also got badly egg-bound, and I thought I should lose her, but she laid in the end, although the eggs, given to Green-winged Kings, failed to hatch. I think I am now well and truly cured of allowing early breeding with many species of Parrakeets. Even if the hens escape egg-binding, the fertility of the cocks early in the season is apt to be poor.

I did not put the Crimson-wing back in her breeding aviary again until mid-May. She laid again and reared four fine youngsters. My old pair of Rock Peplars reared three young ones and a new pair consisting of an imported Victorian cock, and an English-bred hen reared four. Rock Peplars from Victoria are much to be preferred to those from Western Australia on account of the fine clear yellow colour of the cocks. I also had a 1951 cock that had been trained as

a liberty bird, and I used, for a time successfully, in training the Victorian cock's four offspring. After a few weeks, however, he disgraced himself by going off, taking the young hen with him. Some weeks later she returned alone, so presumably he met with an accident. As a rule young Rock Peplars, properly trained and managed, can be flown as day-liberty birds with perfect safety for about six weeks, and great is the enjoyment to be derived from their superb flight. If allowed out much longer they tend to go wild and eventually are lost, so that it is necessary to catch them up and confine them until the cocks have mated, when the presence of their wives in aviaries should "anchor" them for good. Hens are always worse stayers than cocks, and are better kept in as soon as their sex can be determined with some degree of probability.

Green-winged Kings, as usual, had two lots of clear eggs. They seem to be too old to be fertile, although they are most eager to go to nest.

Browns repeated their disappointing failure of last year, losing their young for no obvious reason at about 10 days.

In the spring I had obtained three imported Browns, but they seemed to have no constitution at all, and got ill again and again even while still in the heated birdroom. One hen soon died of an unusual throat ailment. The cock, after about half a dozen illnesses, swallowed the bristle of a brush which at length finished him. After that his mate, who had been getting ill even oftener than he, blossomed out into robust health and breeding condition. Who says there isn't an X!?

Two pairs of English-bred Pileated Parrakeets each hatched their six eggs, but made a poor job of rearing, only three young surviving in each case. The old birds plucked their offspring, one pair very badly, the cock being as serious an offender as his mate.

The hen Barnard would not settle down. She only laid one egg and did not sit.

The Blue Indian Ringnecks did better, rearing four young. I tried a year-old cock blue with a lutino hen but, though he displayed, he was too young to mate and the eggs were infertile. Later the hen died and a pair of two-year-old lutino-bred greens lost their young, probably through the hen getting ill.

Gang-gang Cockatoos reared a pair of young, but the hen injured herself severely the day she left the nest. She is now, however, nearly well.

Roseate Cockatoos this year were a failure. The old albino hen mated to her son laid again after an interval of nearly fifteen years, but the eggs were infertile. Another white-bred cock mated to a normal grey hen did not breed, although the hen had nested regularly in previous years. Two young 1951 normal Roseates which I hoped to

establish as liberty birds behaved in a disappointing fashion, although those that one breeds are normally good stayers. I first released the young hen. She went out quietly and looked like settling down, but the following day she removed herself to the Battlesden area, about three miles away, where she settled down as a wild bird. Her brother, when first released, stayed well, and after a few weeks I used the parent cock as a decoy and captured his erring daughter without difficulty and brought her home. For a short time she stayed well with her brother, then the pair returned to Battlesden. After some weeks one returned and spent a few hours at the aviaries, but again went off in the Battlesden direction, and soon all news of them ceased. (By a very strange coincidence Pennant's Parrakeets were bred *at liberty* at Battlesden in 1871, forty-three years before I bred them at liberty at Woburn !)

A lutino cock Nyasa Lovebird mated to a green hen did not nest this year, and pretended to be terribly nervous, although they had lived in aviaries and wintered in cages for years. Possibly these lovebirds, like budgerigars, nest more readily in colonies.

As the cock I had obtained with much difficulty had died suddenly during the winter, my two hen Naretha Bluebonnets continued in unrelieved spinsterhood and, like the widowed hen Browns, in much more robust health than they had enjoyed when there was a prospect of getting them mated !

This year I started a new aviary of liberty Budgerigars in Devonshire, the foundation stock consisting partly of homing birds from Woburn and partly of non-homers. They were kept shut into the aviary until the young of the first round were leaving the nest, and when released the homers behaved as well in their new locality as they had done in the old one. The non-homers, as at the beginning of my experiment at Woburn, either proved "non-exits" and did not go out at all, or gave a certain amount of trouble by straying. Of those that strayed and were reported and recaptured with the aid of a spare cage containing food and another cage with a decoy, some proved sensible the second time, and some did not go out again. Budgerigars and other Parrakeets, on finding themselves free, may go off for different reasons. Some depart because they really *want* to go. Others do not really wish to leave, but are puzzled and confused by their unaccustomed freedom, and lose their heads and their way. Very quickly, however, they learn to manage themselves in the air and to fly *down*, and if they can be recaptured may give no more trouble. The other type are, however, hopeless as liberty birds. Very young birds only just able to feed themselves will usually "home" for a time, even to a new aviary if it contains plenty of others of their species, but their subsequent performance will depend on how they are bred. Young birds whose eyes and ceres are beginning to change

colour are at the worst age for release in a strange place. Even homers that have flown at liberty elsewhere are not to be relied on. If purchased at this age they must be confined until they have bred, and their young are leaving the nest.

The homing Budgerigars at Woburn started the season very well, but I made two mistakes later that taught a rather unexpected lesson. In previous years I had allowed some birds to continue breeding until late autumn, although I did not permit any individual pair to rear more than two broods. This season, however, the Budgerigars were staying so well and the aviary was getting so overcrowded that instead of disposing of surplus stock then, as I should have done, I stopped all breeding in the aviary. I also made what proved to be another mistake. Previously the birds in the liberty aviary had never all gone out together. Some always remained inside. One day, however, I drove them all out at once, and although some began to re-enter within a few minutes it was clear that I had caused a psychological upset. The birds that came in were much disturbed at finding the aviary empty. "The place didn't feel the same," and after feeding quickly and nervously they flew about restlessly like wild birds trapped in an enclosure, and quickly made their way out again. This and the stopping of all breeding had a curious and lasting effect on the mentality of all the occupants of the aviary. They became wild and scary; lost their steadiness and would no longer feed from millet sprays held in my hand; were subject to panics and stayed in the shelter long after sunrise as they do when there is a Sparrowhawk about. Young hens did not come into breeding condition and select nest boxes eight weeks after leaving the nest themselves, as is usual. They moulted and still showed no interest in nesting. Finally they began to stray, going off in small parties and—which had never happened before—even some old breeding birds of both sexes were among those that left. To check this tendency I introduced, from the hens' resting aviary, three homing hens I judged to be in breeding condition; but these also showed no interest in the nest boxes, and two even went away.

I then kept the birds shut up entirely for about a fortnight, introducing four more homing hens from the resting aviary. That did the trick. After a few days these hens selected mates and nest-boxes. Their example infected all the young hens of different ages, and they too rushed into breeding condition. The temperament of all the birds in the aviary likewise changed; their tameness returned; and when they were again released there was no more straying, even among unmated birds.

It is clear, therefore, that the attraction which "anchors" homing Budgerigars to their aviary is its significance to them as a breeding place. This must on no account be upset except of course during

the winter, when the short days and absence of wild foods reduce the temptation to stray to a minimum. Next year I intend to arrange two breeding "shifts". Towards the end of February I shall introduce about eight fully adult hens, leaving them to select their partners from the considerably larger number of cocks occupying the aviary. At the end of June, when they have reared their second broods, I shall put them and, for a few days, their mates also in the resting aviary, providing another eight hens for the cocks that have not yet bred. I shall have the first catch-up of surplus young birds about the same time, and may confine the whole flock for some days to allow the new adult hens to choose their nests and mates and the young hens to profit by the good example set them! Past experience has shown that it does a hen no harm whatever to allow her to have one nest as soon as she wants to, provided she lays before 1st September. Her young may not always grow into large birds, but there is rarely much wrong with them either. Cocks that have bred early in the season I shall return to the liberty aviary as soon as the second lot of adult hens have mated. They can then moult and rest and, as the aviary will still have a "breeding atmosphere," they are not likely to stray. Experience has again shown that whereas a "breeding atmosphere" is a vital factor, it is not necessary for every cock in the aviary to be mated to keep him at home.

For waterfowl the season has been the worst I ever remember. Never before have vermin been so active in destroying eggs, young, and sitting birds, and never before, among the geese, have so few pairs gone to nest or so many eggs proved infertile—under conditions identical with those which in previous years have produced quite good results. The only geese reared have been one Emperor, one Red-breasted, and one Magellan, and the only ducks (apart from wild Mandarins), about two dozen Carolina.

* * *

THE SOCIETY'S MEDAL

The Council proposes to award the Society's Medal to: H. J. Indge, for breeding the Red-sided Eclectus, *Lorius roratus pectoralis*.

Any member or reader knowing of a previous breeding of this species in the United Kingdom or Northern Ireland is requested to communicate at once with the Hon. Secretary.

* * *



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[P. Barclay-Smith

MADAME JEANNE DERSCHIED

(At the International Zoological Congress, Paris, 1948).

OBITUARY

MADAME JEANNE DERSCHIED

The news of the death of Madame Jeanne Derscheid which occurred at a few minutes past midnight on the night of 2nd-3rd January, 1953, will be received with the greatest sorrow by her many friends in the Avicultural Society. The British and Americans have particular cause to be grateful to Madame Derscheid, her husband, and their family for the great part they took in the Escape Service which achieved the safety of many British and American airmen during the last world war ; a service for which Dr. Jean-Marie Derscheid gave his life. On two occasions Madame Derscheid was imprisoned as a hostage on account of her husband's activities and was decorated for her own services with the *Médaille de Prisonnière Politique*, *Médaille de la Commune*, and *Médaille de participation aux œuvres de Guerre*. In 1948 Madame Derscheid received from Field-Marshal Montgomery the late King George VI's Commendation for Brave Conduct which His Majesty had commanded she should receive personally on behalf of her husband in recognition of special services he rendered to the Allied cause during the war and which proved of particular value to Great Britain. Madame Derscheid was also presented with a similar Certificate by the U.S. Ambassador in Belgium expressing the gratitude and appreciation of the American people for the gallant service performed by her husband in assisting the escape of Allied soldiers from the enemy.

Madame Derscheid shared her husband's interest in birds and aviculture and actively assisted with the famous collection at Armendy before the war, particularly in the rearing of rare ducks. In 1929 and 1930 she accompanied Dr. Derscheid to the Belgian Congo, when he led a scientific expedition to Kivu and the regions of the Albert National Park.

After the war Madame Derscheid made many visits to England and was on three occasions the guest of honour at dinners of the British Aviculturists' Club. Though assured of a warm welcome as the wife of a great aviculturist she earned a special place for herself in the affections of everyone who met her by her gentle charm, natural friendliness, and spontaneous gaiety. Madame Derscheid took a great interest in all the affairs of the Avicultural Society and was instrumental in procuring numbers of new members in Belgium ; she also organized the Belgian participation in the most successful Anglo-Belgian-French week-end meeting of aviculturists which was held at Clères in May, 1950.

Her premature death after a severe illness which she bore with outstanding courage is yet another tragic loss to her son, Jean-Pierre Derscheid, and the deepest sympathy is offered to him and his grandmother, Madame Gustav Derscheid, in their great sorrow. P. B-S.

FIVE RARE NEW ARRIVALS AT KESTON

By EDWARD J. BOOSEY (Keston, Kent, England)

During last year (1952) we received a few welcome and rarely-imported birds at the Keston Foreign Bird Farm.

The first to arrive was a pure lutino Plumhead Parrakeet; then came two pairs of Lilac-crowned Fruit Pigeons (*Ptilinopus coronulatus*), and half a dozen Citron-crested Cockatoos (*Cacatua citrinocristata*), followed by six Layard's Parrakeets (*Psittacula calthorpæ*), and finally, three pairs of the Cuban or White-fronted Amazon Parrots (*Amazona leucocephala*).

Layard's Parrakeet is very rarely imported indeed, probably because of its restricted range, as it is entirely confined to the Island of Ceylon, and does not extend to any part of the Indian mainland. The six we have are young birds of the year, and were very kindly presented to us by Major Weinman of the Colombo Zoo, who, with his wife and son, paid a visit to our farm about a year ago, and we are most grateful to him for this welcome gift.

To take the first arrival first: The lutino Plumhead was an immature and rather delicate-looking specimen, and twice it nearly died. At first it shared an aviary with an ordinary green hen, and both were given sweetened bread and milk and millet spray, as well as apple and the ordinary seed mixture. At first they ignored the latter, having been sent over on nothing but small brown Indian millet. Later on, however, both (as we supposed at the time) started to eat the normal seed mixture, and the daily amount of bread and milk and millet spray was gradually reduced, although a plentiful daily supply of apple was still maintained. The lutino, however, showed increasing signs of weakness, and it was only just in time that we discovered that it was the hen alone who had taken to the normal seed mixture. After that the lutino was put in an aviary by itself and given plenty of bread and milk, apple, and millet spray. Even so, however, it did not really seem to flourish and eventually got a bad chill and had to be put in the hospital. It was very weak, and I had not much hope of saving it; nevertheless, it finally pulled round, and the fact that it is alive and very flourishing to-day is really due to the fact that I happened to put it to share an aviary with a heated shelter with a pair of the Fruit Pigeons. The latter's staple diet consists of boiled maize and rice sweetened with Nestle's milk, and having sampled these the Plumhead decided at once that they were the ideal diet for a delicate Parrakeet, in which apparently it was right, for it has never once looked back since it started eating them. After the autumn moult it assumed full adult plumage with the typical long tapering tail of a Plumhead, and is now very handsome with a bright golden-yellow body and flesh-pink head.

The two pairs of Lilac-crowned Fruit Pigeons (which, incidentally, were sold as Jambu Fruit-Pigeons and not as Lilac-crowns) were sent to us by air from Singapore, and arrived in quite good condition, in spite of the fact that they had been given nothing but ordinary uncooked maize to eat on the journey. They seem even more quarrelsome than ordinary doves and pigeons and one of the hens bullied the other so badly that the pairs had to be separated with all speed. Nor did they hesitate to attack the Plumhead Parrakeet when it was first put in an aviary with them, buffeting it with their wings if it ventured anywhere near them. Now, however, the three have formed one of those improbable bird friendships, and it is a curious sight to see the two Fruit Pigeons and the Parrakeet sitting side by side on a perch, so close together as to be actually touching—all their former enmity forgotten !

The Fruit Pigeons are very beautiful, a rough description of them being that they are green, with a wide diffused orange band across the breast, in the centre of this band being a patch of pale violet. The feathers of the neck and crop are grey with a greenish tinge and are rather stiff and pointed, like the feathers of a cock's hackle, and the crown of the head is a very lovely rosy-lilac colour narrowly bordered with yellow. They inhabit the Aru Islands and New Guinea, and are quite small.

Some species of Fruit Pigeons—and I rather think this one among them—have been given the reputation of being hardy if shut into a cosy shelter on winter nights, but although this may be the case once they are thoroughly acclimatized, they certainly need heat during their first winter in this country. Ours arrived about the end of August, and I was able to put them in outdoor aviaries as soon as they had recovered from the journey. Directly the weather became at all cold, however, it was obvious that they would have to be given heat, but although we have had some quite sharp frosts of late, one pair are so far doing very well in an aviary with a lamp in the shelter. This pair is the better of the two, and with the other pair we had a stroke of bad luck, as the cock got a chill as soon as the weather started to turn cold. He was put in a hospital cage, and was recovering when the heat supply failed during the night, and he was found dead in the morning, so we now have a pair and an odd hen, and I shall keep the latter and hope to breed a mate for her next summer. This, incidentally, would not be a first breeding, as Captain Stokes successfully bred Lilac-crowns on more than one occasion some years ago, and found that, like the Ruddy Quail Dove and Bleeding-heart Pigeon (both of which we bred at Keston before the war) the young leave the nest at a very tender age.

Judging by our Lilac-crowns, Fruit Pigeons differ in several respects from the grain-eating species : they fly quickly but less gracefully

than the latter ; the under-surface of their feet is flatter and they have a tenacious and rather reptilian way of gripping one's finger or a perch, which doubtless enables them to clamber swiftly about among the branches of the trees on the fruits of which they feed ; also they seem very silent birds, and I have never heard ours utter more than an occasional low murmuring sound, though they may become more vocal in the spring.

They have proved unexpectedly easy to cater for in the matter of food, and ours have come into excellent condition on a diet consisting solely of boiled kibbled maize and rice sweetened with Nestle's milk and then drained, with cored, peeled, ripe sweet chopped-up apple added each day before it is given. This diet has the added advantage of keeping their faces as clean as possible, whereas I find that if they are given mushy fruits such as plums and bananas they get themselves in a fearful mess.

I had somehow never thought of Citron-crested Cockatoos as particularly attractive, but the six that arrived here by air and in excellent condition quickly made me change my opinion of them, and I think that with their lovely combination of orange, palest lemon-yellow, and snow-white, they closely rival Leadbeater's for beauty. The general body-colour is white, with the under surface of the tail and a patch on the cheeks pale yellow. The crest, which is very large, particularly in the male, who can spread it almost as far forward as a Leadbeater's, is bright orange.

Many birds are stupidly named—this one being a good example—and I cannot imagine why, when a bird with a crest the colour of a ripe lemon was aptly named the Lemon-crested, or Sulphur-crested Cockatoo another bird with a crest the colour of a ripe orange should not have been named, with equal aptness, the Orange-crested Cockatoo—and it is only fair to add that the inhabitants of its native land have apparently had the sense to call it this ! as we were offered them not as Citron-crested but as Orange-crested Cockatoos.

Their one disadvantage is their extreme shyness. The cock of our pair is even shyer than the hen, who does very occasionally venture out into the open part of the run if she thinks there is nobody about. Another peculiarity—and one that would be a great advantage if one of these Cockatoos was kept as a pet in a room—is that they are an extremely silent member of an extremely noisy family, and I cannot recall having heard either of ours utter a sound of any kind, except when they were being caught to be transferred to their present aviary.

The Layard's are charming little birds and quite tame and steady. They are about the size of a Plumhead, but their tails, instead of being long and tapering, are quite short. The six Major Weinman has given us are as yet in immature plumage and are predominantly green, brighter on the head, and brightest just below the blackish

neck-ring which is just starting to appear in some of them. The two central tail feathers are fairly dark blue tipped with greenish-yellow, and the rump is lilac-blue. Four of them have red beaks, and the other two black ones, so it looks as though we have two pairs and two odd birds. I am not, however, certain of this particularly because one of those with red beaks has to my mind an unmistakably feminine look about it, and its beak rather looks as though it may be in the process of turning black. I am not certain about the colour changes of the beak in young Layard's, but in their relative, the Malabar Parrakeet, young males have the curious, and I should think unique, habit of starting with a red beak which later turns black, and later still turns red again! Young females, on the other hand, merely start with a red beak which later turns black.

Adult Layard's are most attractively coloured, having the head lavender-blue and the mantle the same colour shot with grey. The young Layard's have settled down well in an aviary facing south with a heated shelter in which they are shut each night. Like the lutino Plumhead, they all eat bread soaked in sweetened watered milk, and are very fond of boiled sweetened maize and rice, all of which should prove valuable additional rearing foods if we are successful in breeding them.

The last birds to arrive were the three pairs of Cuban Amazons—the first we have ever been offered since we started the farm. I have always thought them one of the loveliest members of the family, as the deep rose-pink of the cheeks and throat goes so beautifully with their main body-colour of green and the feathers of the head, neck, and forepart of the body strikingly bordered with black. The crown is white, and there is a considerable amount of purplish vinous-colour on the lower breast and abdomen. The beak is very pale, almost white. They are considerably smaller and slimmer than Blue-fronts, and seem fairly easy to sex, as the hens have smaller, rounder heads and the rose-pink area in their plumage is rather less extensive and not so well-defined.

The three pairs we have are in an outdoor aviary with a heated shelter, and have not yet been let out into the flight, as I think they are far better off inside so long as this arctic weather, which this year has come so unseasonably early, persists—which I sincerely hope it will not do for long, as we usually get quite enough of it in the first three months of the year.

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REARING CONDORS IN CAPTIVITY IN THE UNITED STATES

By KENTON C. LINT (San Diego, Calif., U.S.A.)

The Andean Condor, *Vultur gryphus* Linné, is an inhabitant of the mountain chain of the Andes. It is found principally in the Peruvian and Chilean Andes, but it also ranges as far north as Bogotá, and south to the mouth of the Rio Negro on the east coast of Patagonia. According to the early observers, it was described as frequenting the loftiest peaks of the Cordilleras, but later writers deny this, and say it rarely ascends above 16,000 feet, while the normal range is the zone lying between 9,000 and 15,000 feet.

The Andean Condor is not only the largest of the birds of prey, but the largest land bird of flight. Over a period of ten years, 1942–1952, the Zoological Society of San Diego has hatched eight Condor babies and reared seven Condor chicks to maturity. All seven birds are living and on exhibition in Zoological Gardens in the United States.

The first Andean Condor raised in captivity in the United States was hatched 8th July, 1942, in the Zoological Gardens of San Diego, in our large flying cage. The first baby proved to be a male, and was sold to the Washington D.C. Zoo, where it is still on exhibition.

Again, on 8th June, 1945, the second Andean Condor baby was hatched and raised, another male bird.

On 21st June, 1947, our breeding pair of Condors hatched their third chick. We were a little disappointed, as this baby was also a male. We removed this bird from the old pair just before nesting time, to see if they would nest in consecutive years.

This strategy did work, and on 20th May, 1948, the fourth baby Condor was hatched, breaking the old precedent that Condors only raise every other year. This baby, our first female chick, was removed from the parent birds when four weeks old, and raised to maturity by hand feeding. Weights and feather growth were recorded weekly, and much was learned in rearing this young bird. The difficulties in the way of field studies would make it impossible to acquire the same knowledge in the wild. We fed one half pound of finely ground liver twice a day, and one half pound of finely ground horse meat twice daily.

On 7th June, 1949, the fifth Condor was hatched, a male, and raised to maturity by the parent birds.

Experimenting in hatching Condor eggs in an electric incubator, we hatched the sixth chick 31st May, 1950. This baby, a female chick, lived seven days. Our breeding pair laid a second egg which hatched 10th July, 1950, also a female chick, which they raised to maturity.



Breeding pair of Andean Condors in San Diego Zoo.

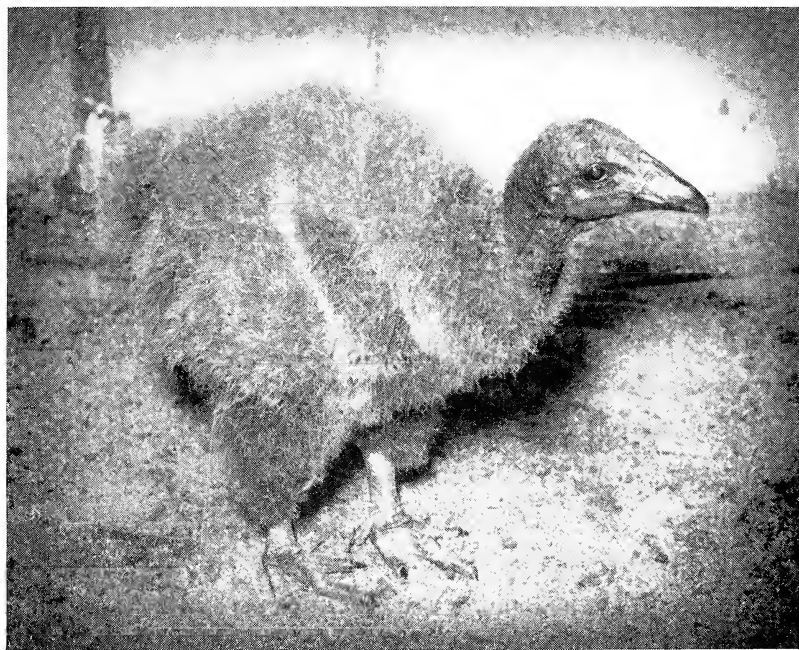
[San Diego Zoo

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To face p. 22.



Condor chick. Erect fleshy comb determines sex—male. Hatched in incubator, 23rd May, 1951.



Copyright] [San Diego Zoo
Thirty-day old Condor chick. Smooth head—female. Hatched by
To face p. 23. parents, 20th May, 1948.

On 23rd May, 1951, the eighth Andean Condor baby was successfully hatched, this one in an incubator. It was raised to maturity by hand feeding. This male chick weighed six ounces at the time of hatching. Shipped to Liberty Park, Salt Lake City, Utah, at the age of eleven months, the bird weighed 34 pounds. This bird was fed on tenderized food from the time of hatching, without the use of regurgitation as used by the parent birds. To our knowledge this has not been done before successfully in captivity.

Our breeding pair of Andean Condors were purchased, male, 29th June, 1929, female, 3rd March, 1934. The male Condor was 14 years old when the first egg proved to be fertile. The female was 10 years old when the first egg was deposited.

Complete record, 1942-1952.

1. 8th July, 1942—First baby—male.
2. 8th June, 1945. Second baby—male.
3. 21st June, 1947. Third baby—male.
4. 20th May, 1948. Fourth baby—female.
5. 7th June, 1949. Fifth baby—male.
6. 31st May, 1950. Sixth baby—female, died at 7 days.
7. 10th July, 1950. Seventh baby—female.
8. 23rd May, 1951. Eighth baby—male, incubator baby.

We are certainly proud of this fine record in rearing this particular bird of prey, and would like to establish the incubation period of 56 days for all eight hatchings in the Zoological Gardens of San Diego.

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NEWS FROM THE ZOOLOGICAL GARDENS OF WASSENAAR, HOLLAND

By G. DE GOEDEREN (Amsterdam, Holland)

In the zoological park Dierenpark "Wassenaar" a new large bird-house is being built and will be the home of the zoo's interesting collection of birds, about which I had the honour to inform our members in the AVICULTURAL MAGAZINE of July-August, 1951.

The birdhouse, which will be opened in spring of 1953, is a large glass construction measuring over 400 feet in length with a width of over 60 feet and a maximum height of 21 feet. The President of the Society, Mr. P. W. Louwman, was kind enough to give me a rough outline of the plans of the internal construction of this large building.

From what I saw of the great aviaries which are now under construction in the building, I expect that when everything is completed this birdhouse will be not only the most beautiful but will also guarantee the most appropriate housing for the bird collection of this zoo.

Over 100 enclosures of varying size are expected to be filled with a considerable variety of rare birds, such as : Quetzals, Cock of the Rock, Birds of Paradise, Greater Hornbills, Toucans, Crowned Pigeons, a considerable number of Parrakeets and Lorikeets, and an abundance of other birds.

The aim is to give the spectator a view of the birds in natural surroundings, but in this the management has given more attention to the actual biological needs of the birds than to purely ornamental adornments, which are so often advertised as natural surroundings, but which are very often only very poor imitations and generally do not fulfil the most elementary demands of practical birdkeeping.

From what I saw I am quite sure that the Louise Hall (named in honour of the late Mrs. L. Louwman-de Brey, mother of the President) will be an achievement, which will be greeted with enthusiasm by all aviculturists and which no doubt will attract much attention.

* * *

COMPARATIVE STUDIES ON THE BEHAVIOUR OF ANATINÆ

By Dr. KONRAD LORENZ (Dulmen in Westfalen, Germany)

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(*Festschrift Oskar Heinroth*)

Translated by Dr. C. H. D. Clarke, Division of Fish and Wildlife, Ontario, Canada

(Continued from Volume 58, page 184)

XVII. THE WIGEON AND THE CHILOË WIGEON

Mareca penelope (L.), *M. sibilatrix* (Poepig)

A. GENERAL.

Both species are only being mentioned as a kind of appendix as I do not know them nearly well enough. Both, through the lack of a social play and through their highly specialized method of pair formation, which in *M. sibilatrix* is quite reminiscent of that of the Anserinæ, stand out sharply from the pattern of the rest of the surface-feeding ducks. The following facts are important taxonomic characteristics which separate both species sharply from other Anatinae : (1) the almost uniform colour of the plumage of the female *M. penelope* which completely lacks the lengthwise marking so widely prevalent on the flight feathers ; (2) the dark chestnut-brown summer plumage of

the drake ; (3) the showy plumage of the female with green feathers on the head, found only in *M. sibilatrix* ; (4) the colour of the ducklings, whose heads are almost entirely of one colour with no long stripes.

B. THE NON-SEXUAL REACTIONS AND NOTES.

Conversation and call-notes of both sexes are strangely reduced. The female *M. penelope* has really only one call, a whirring "Rerrr", to which there corresponds in the South American female a deeper "Arrr". The drakes of both species have entirely lost all calls and are dependent upon their highly specialized courtship-whistles for all audible utterance. The whistle which is most commonly heard in the European species consists of one syllable, something like "W i i rrr", and in *sibilatrix* cocks it is composed of two syllables and sounds something like "W i b urrr". Both use the whistle as a call and as a warning. It is uttered just the same, for example, when a cat sneaks past as when a female flies over the pond.

C. THE SEXUAL REACTIONS AND NOTES OF BOTH SEXES.

In both species these are combined in a ceremony, composed of inciting

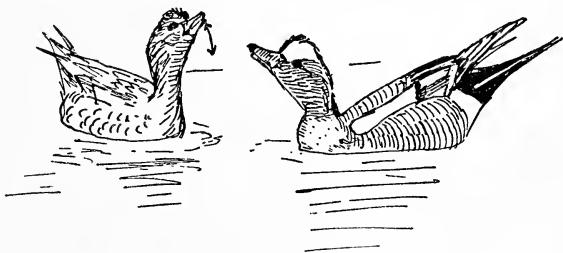


FIG. 44.—The mutual chin-lifting of the Wigeon pair, *Mareca penelope* (L). The little arrow indicates the direction and the degree of the trembling, vertical, inciting movement of the hen. Compare Figs. 3, 32, 42, and 45. Notice the differentiation of the plumage on the front of the drake's head.

and chin-lifting together, which is certainly homologous to that of the Gadwall. It is interesting to note that in *M. penelope* there is a slight indication of the introduction to display, a thing which I have never seen in *sibilatrix*. The drake swims to the female uttering a two-syllabled sound, which is expressed best by the English name of the duck, "Wigeon." He shakes his head in a brief introductory movement and follows it with a very meticulous mock-preening, which the duck sometimes answers with the same movement. For the most part she begins with her peculiar trembling, jerky chin-lifting, whereupon the drake, with the base of his neck sunk deep in the water, at the same time sets up a synchronous chin-lifting which is not repeated in a trembling movement, like that of the hen but is performed only once and is linked with a loud whistle (Figs. 44 and 45). The whirring

sound made by the female, which accompanies the continuous chin-lifting, in which a great number of upward movements are suggested, is, in its accentuation, to be considered a very aberrant form of the inciting of other surface-feeding ducks, and sounds like an apparently continuous "errr". The position she takes corresponds to that of inciting. The female of *M. sibilatrix* lacks the tremulous repetition in its head movement, both sexes lifting the chin with a single movement before which the bill is tipped slightly downward. Like the plumage of the female, her courtship movements are drake-like. The voice of the female sounds deeper, more like "arr", and the whistle of the cock is a two-syllabled "wiburrrr". In the two species the movements and notes of both mates are so well co-ordinated that the whole very peculiar sound pattern sounds very simple. Naumann, as we know, ascribes both sounds, the whistling and the whirring, to both sexes of the Wigeon. The ceremony has throughout the character of a true triumph-cry, whose function is quite similar to that of the triumph-cry of the Anserinæ and Casarcinæ. Therefore I rather suspect

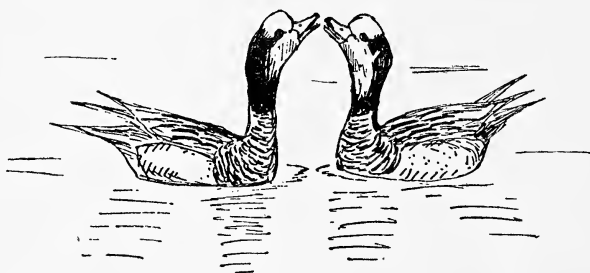


FIG. 45.—The mutual chin-lifting of the pair of Chiloë Wigeon, *Mareca sibilatrix*. Both mates perform the same movement; the behaviour pattern reminds one in its significance of the triumph-cry of geese.

that there are in the European Wigeon at least some indications of the male's care of the young. For *sibilatrix* the latter has been ascertained.

XVIII. MARECA SIBILATRIX × ANAS PLATYRHYNCHOS

A. GENERAL.

Although I have hitherto omitted from my discussion the many hybrid ducks that I have already studied and whose behaviour-inventory I might easily have given, I cannot help touching briefly upon the hybrids named above, which I received through Professor Heck's kindness from the Berlin Zoological Gardens, where a full-winged wild Mallard duck has lived for years, mated to a *sibilatrix* drake. Physically the birds were pretty well intermediate between the parent species, although the male had much less of the Mallard drake's colouring than the hybrids Poll (1910) had pictured. Above all he had little green on his head, distributed just as in the Chiloë

Wigeon. The two birds were paired, laid, and brooded sterile eggs every year and flew around freely for years, until the duck flew away in the winter of 1939-40, while the drake, who had survived this bad time, became frightened by my catching the other ducks before my move to Königsberg and stayed away.

B. THE NON-SEXUAL REACTIONS AND NOTES.

These were exactly like those of the Mallard. The drake had both the one- and the two-syllabled call of the Mallard drake, except that his voice was softer and hoarser.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

Inciting.

This cannot be described more briefly than with the assertion that it was like that of neither the one nor the other parent species, but resembled even to the smallest detail that of the Gadwall. The tendency, inherited from *M. sibilatrix*, to break into chin-raising at every sexual excitement was combined with the urge to perform the inciting act over the shoulder, which the duck had inherited from her mother, with the result that between every two chin-raising there came an inciting movement backwards over the shoulder. As the drake lifted his chin at the same time as the duck, there arose a ceremony which was not very different from that of the Gadwall.

The Decrescendo Call.

This was hoarser and broken off shorter than in the Mallard. A nod-swimming was lacking.

The Prelude to Mating.

This corresponded to that of the Mallard. However, sometimes instead of this both birds carried out the intention-behaviour of diving away before treading, just like the beginning of play-diving before midday bathing. Unfortunately I do not know whether this diving-away occurs as a prelude to mating in *Mareca*. Heinroth has described something corresponding to this in *Tadorna*.

D. THE SEXUAL REACTIONS AND CALLS OF THE DRAKE.

1. *The General Form of the Display.*

This was peculiarly split in two. On the one hand the drake wooed his duck in the manner of Wigeons; on the other hand he mixed in the company-play of Mallard drakes without bothering about her in the least. Leiner described a corresponding cleavage in the taxes of hybrids of the three-spined Stickle-back which nests on the bottom and the nine-spined Stickle-back which builds up in the water plants.

2. *The Introductory Shaking, Drinking, and Mock-preening.*

These corresponded somewhat to those of the Mallard except that the last-named was much more pronounced, as it is in the Wigeons.

3. *The Grunt-Whistle.*

This, and a very pronounced and frequent down-up movement, together with an intensive chin-raising, were the display actions of the hybrid. A head-up-tail-up was lacking in his case.

4. *The Post-Coital Play.*

This was marked by the omission of nod-swimming, that is to say, the drake, after treading, rose slightly in a manner suggestive of the "bridling" movement and then swam around the duck very leisurely without nodding, but paying much attention to her and keeping the back of his head exactly toward her.

5. *Chin-Lifting.*

This is done in unison and is similar to a triumph-ceremony, corresponding entirely to that of the Gadwall.

XIX. THE CAROLINA DUCK

Lampronessa sponsa (L)

A. GENERAL.

Here we come to a group which some experts class with the true surface-feeding ducks and others with the Cairininæ. As a matter of fact this quite independent sub-family, which consists of only two genera, *Lampronessa* and *Aix*, is almost midway between the two. Characters which they have in common with the Cairininæ are the following : (a) Certain markings in the ducklings ; (b) certain physical characteristics resulting from their living on trees and nesting in holes, such as the very long thigh and, therefore, legs that seem to be very far forward on the body ; and also the long broad tail ; (c) certain undoubtedly primitive characters in their behaviour. The true Cairininæ, together with the Carolina and Mandarin ducks, are the only Anatidæ which make aiming head movements before flying up, quite like those of birds of prey, pigeons, and innumerable other orders, but quite unlike the pre-flight movements of all other Anatidæ. A further point the genera *Aix*, *Lampronessa*, and other Cairininæ have in common is that the nystagmic nodding of the head, which occurs when the bird is walking does not take place with every step, as in almost all other birds, but in a most unusual and striking manner at every second step ; thus, the head always goes forward at the same time as the one leg, which almost gives the impression that the bird is limping. Without doubt the genus *Cairinina* is unusually rich in primitive characteristics, a thing which Heinroth, Delacour, and Boetticher

have already pointed out. The black-white marking of the plumage and the bare face-mask remind one of *Anseranas*. The completely reptilian rape of the female, and the complete lack of pairing can also be regarded as primitive characteristics. Now although *Aix* and *Lamprolaima* are undoubtedly highly differentiated forms, very nearly related to true surface-feeding ducks, I prefer to class them fundamentally with the *Cairininae* in agreement with Delacour and Boetticher.

This group, in spite of its clear relationship to forms rich in primitive characters, contains some very highly differentiated forms, analogous, for example, to the *Herpestoidae* in the *Carnivora*, in which forms like *Mungos* and *Crossarchus* exhibit a truly insectivore-like primitiveness, while others in their specialization almost intergrade with the completely separate higher group of *Felidae*, such as the Civet Cat *Viverra*, the Palm Civet *Paradoxurus*, or even the Fossa *Cryptoprocta ferox*.

The Carolina Duck's reactions were exhaustively described by Heinroth in 1910. We shall only give them briefly for the sake of comparison.

B. THE NON-SEXUAL REACTIONS AND NOTES.

Except with very small ducklings the two-syllabled conversation call of the *Anatinae* is lacking. In the whistle of desertion the one-syllabled "piep" call does not sound at the same intervals as in the *Anatinae* but, especially at moments of high intensity, in couplets, but not so close that they sound like two syllables. We have already spoken of the intention-behaviour for flying away which is distinctive for the whole group. The duck's "go-away" call, which is heard especially when she is looking for the nest, is a soft rapid "tetetetetet". That used by the drake in the corresponding mood is a delicate "jibjibjibjib". As a conversation note the drake utters a short "ji-ib", accented on the second syllable, which one hears especially when he is paying "polite" attention to the duck. The call-note of the drake is a drawn-out "ji-ihb"; the duck's call-note is a more raucous "ku-ack". While the calls noted are analogous in significance to what may also be homologous utterances of many *Anatinae*, the warning call of the female is a peculiarly short "Huick". As in the *Anatinae*, the drake's warning call corresponds to the call-note. While these two calls of the *Anatinae* cannot be distinguished, the drake Carolina's warning call is very clearly recognized by its cut-off brevity.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting*.

This takes place in the manner typical of surface-feeding ducks, over the shoulder. Between the separate inciting movements the female

makes caressing movements with her bill towards the drake, especially towards his breast. Mandarin ducks do this in the same manner. On the other hand, the female Brazilian Teal, *Amazonetta brasiliensis*, has a very peculiar inciting behaviour which may perhaps be regarded as derived from the one just described. She first threatens the "enemy" with her neck stretched forward, with her upper mandible raised and her bill open, then turns her head towards her male and performs the typical inciting movement, accompanied by a rasping note, in his direction. Between the inciting movements the female Carolina often moves her head as if aiming which, as in the Carininæ, has the significance of a very general excitement gesture.

2. The "Coquette-Call" (Heinroth).

This is not a very loud sound. It is difficult to represent in letters but it is something like "houi" and in its function corresponds to the nod-swimming of the Mallard and Chestnut-breasted Teal, i.e. to stir the drake up to the courtship display.

3. The Flight-Call.

This is a peculiarly loud "u-ih" corresponding to a long drawn-out and gradually dying call-note. It sounds peculiarly like an owl. No one who did not know it would ever ascribe it to a duck. It is heard especially towards evening and when Wood Ducks fly in over decoys. As lonely ducks are very prone to utter it, it doubtlessly has the additional significance of a decrescendo call. I did not, however, at the time of the first publication of this paper, believe that this note was phylogenetically comparable to the decrescendo call of the Anatinæ proper. Better knowledge, acquired but lately at the Severn Wildfowl Trust, has made me change that opinion: the female of the Maned Goose *Chenonetta jubata*, has a decrescendo call which, while quite indubitably homologous to that of the Anatinæ, at the same time is so similar to the "owl-note" of the female Carolina that it represents an exact intermedium between both. *Chenonetta* is, in spite of its goose-like bill, a close relation of *Lampronessa* and *Aix*, but in some details of its courtship it shows a closer resemblance to the Anatinæ than both of them do. Thus it is not so astonishing that its decrescendo call forms a connecting link between that of *Lampronessa* and that of Anatinæ. An interesting difference lies in the fact that the "owl-note" of the female Carolina also denotes the duck's intention of flying away herself which the common decrescendo call of surface feeding ducks certainly does not.

4. The Prelude to Mating.

The prelude to mating of the female is, in contrast to all Anatinæ, a completely quiet crouching down with extended neck. Ducks often

swim after their unwilling mates in this position for some minutes. On his part the drake shows his intention to mate by repeated drinking and aiming head movements, sometimes even interspersed with mock-preening. The Mergansers, which in Delacour's opinion are closely related to the Carolina-Mandarin group, have almost the same prelude to mating.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of the Display.*

The drake Carolina woos *one* particular female more than any male of the Anatinae that I know. While the courtship of the Gadwall and Wigeon, with their threatening and annoying of other pairs, reminds one of the courtship of the Anserinae and Casarcinae, the display of *Lampronessa* reminds one very much of the display of pheasants, in which the male continually reveals his striking plumage differentiation before the female. There is not the least tendency of the drakes to unite in a social display, which is all the more interesting and striking because this minimum of social play in *Lampronessa* is in direct contrast to a maximum of social play on the part of the closely related *Aix*. The number of different, though for the most part not highly differentiated, behaviour patterns in the drake Carolina is striking. Perhaps this is a primitive condition.

2. *The Introductory Shaking.*

This occurs not very often and only in one particular situation. That is, when the drake, while in a state of "lazy" restfulness and of "low motivation" concerning courtship activities, finds himself suddenly confronted by his female. The rising of "courtship mood" finds its expression in a repeated shaking of the head exactly similar to the initial shake of Anatinae. Very frequently it is combined with drinking.

3. *Mock-Preening.*

This regularly follows drinking, especially at a high reaction-intensity. As with *Aix* it never occurs without the preceding drinking. However, in *Lampronessa*, in contrast to *Aix*, there is drinking in moments of lesser intensity but this is not followed by mock-preening. In mock-preening the drake Carolina reaches deep behind his wing. As rapid as the movement is I have a clear impression that he touches and moves one particular feather on the underside of the wing, which Heinroth calls the "brass-feather". Because of their extraordinarily short time of reaction birds have a great number of optically-effective releasers whose exposure is too brief for human observation. One thinks of the Mallard drake's fountain already described, which was revealed to us only through the short exposure time of the camera.

4. *Burping.*

This is rather rare in the drake Carolina. It is doubtless homologous to that of the Anatinæ and the Mandarin drake. The accompanying sound, a whistling-sneezing "Pfit" sounds very different from the long drawn-out "Pfrrruiib" of the Mandarin. The

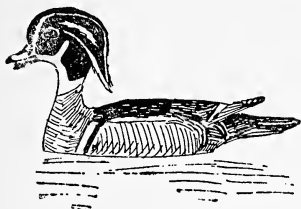


FIG. 46.—The burp of the drake Carolina, *Lampronessa sponsa*. The disk-set is very effective visually because of white lines on the edge of the forehead and through the lengthening of the feathers. Compare Figs. 20, 24, 35, 39, and 50.

movement of the hood, which is seen particularly in this movement, is the same in both species. The edge of the "disk set", already mentioned, protrudes sharply, while the feathers of the back of the head, which are partly white and elongated, form a long veil, giving the bird its German name (bride duck) (Fig. 46).

5. *The Down-Up Movement.*

This is homologous to that of the Anatinæ only because it has certainly arisen from a drinking through mimic-exaggeration. After the bill has been briefly tipped downward it is thrust up

almost to a vertical position, during which the drake utters a short whistle. A loose connection between this act and that of chin-lifting shows that both have probably the same origin.

6. *Chin-Lifting.*

Chin-lifting itself is connected with the turning of the back of the head (Fig. 47) just as it is in the solicitous Mallard drake. With the drake Carolina, too, the plumage on the back of the head is laid flat so that the surface turned to the duck shines, not like the Pintail and the Gadwall drakes, or in the Mallard's second turning, where it is striking because of its lustreless black. Something else happens with the drake Carolina's head feathers, in that the hood is not only depressed tightly against the neck, but at the same time it is spread to the side so that the surface turned toward the female is considerably widened and appears shiny green edged with white (Fig. 47). This turning of the back of the head is one of the most frequent of the drake's display acts, and in it the drake is almost constantly showing solicitude for his duck. At the same time, a second plumage differentiation comes into play. The drake, swimming before his duck, turning the back of his head to her and constantly uttering the short "jiib . . . jiib . . . jiib", turns his tail sideways toward her. The tail is held high so that the deep purple-violet side, with the orange-red plumes in the shape of a sickle hanging to it, is also turned to the duck, as

is the spread-out back of the hood (Fig. 47). With the drake Carolina every little detail of a plumage so rich in special differentiations is used, so to speak, in a special ceremony effective optically as a "visual adaptation" in the Süffert sense, or "releaser" in the Lorenz sense. As the drake cannot turn his tail at right angles while he is turning the back of his head and showing the side of his tail, he swims in front of the duck quite obliquely "from the shoulder" always directed exactly so that the purple surface comes vertically

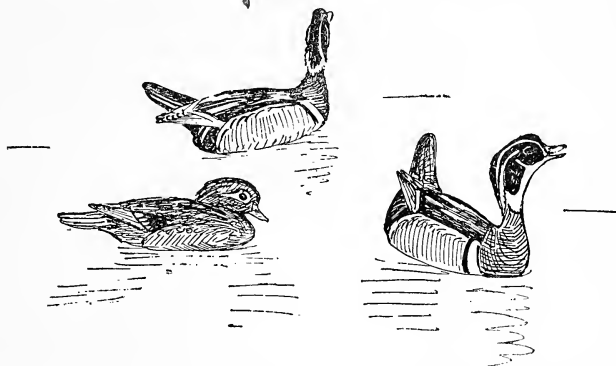


FIG. 47.—The turning the back of the head of the drake Carolina, with chin-lifting, and a slanting position of the tail. The white-edged surface of the "bride's veil" as well as the violet side-surface of the base of the tail, ornamented with orange-yellow down, are turned toward the duck courted, so that they are directly in her line of vision.

into the duck's line of vision. He often changes from right to left and left to right. Each time the tail shifts from one side to the other.

7. *The Whistle-Shaking.*

I purposely do not designate this action as a grunt-whistle because I believe it is homologous to that only in so far as both arise from the introductory shaking. On the other hand this very behaviour of the drake Carolina, because it is far nearer the original form of shaking than is the grunt-whistle of the Anatinae, is to me the most convincing evidence of the correctness of our view concerning the phylogenetic derivation of the latter. In the Carolina, even the completely autochthonous, mechanically effective shaking begins with a lowering of the head almost to the breast, so that the upward thrust which follows reminds one of the grunt-whistle movement of the Anatinae, just like the "display-shaking" of the male *Tadorna tadorna*. The "whistle-shaking" of the drake Carolina compared to the "true" shaking of the duck is only slightly, although noticeably, mimic-exaggerated, but in combination with the linkage to an introductory shaking, the fact that the drake utters a whistle exactly at the right place makes up a continuous chain of evidence for the theory that the

grunt-whistle of the *Anatinæ* has come from a similar shaking. The whistle-shaking of the drake Carolina is comparatively rare.

8. *Male Inciting.*

The drake Carolina is the only male among the *Anatinæ* I know that has a symbolic threatening behaviour completely like the inciting behaviour of the female. Especially when he is being incited by the duck, and clearly as an answer to her the drake thrusts his head over his shoulder sideways as though threatening an "enemy". At each thrust he utters a soft "dih".

9. *The Combat of the Drakes.*

This is marked by the fact that the bill is not used as a weapon of attack. Drakes shoot like a flash over the water beside each other and hit with the shoulders of the wings without ever seizing the other with the bill. In *Lampronessa* this shooting ahead has become "ritualized" as an independent form of display. The drakes often shoot up to the duck they are courting in the same way, or shoot back to her after chasing off another drake. Even old females carry out this behaviour for their drake. Then both birds shoot along beside each other like fighting drakes but the next moment the ceremony changes into the turning of the back of the head and expressions of good will.

10. *The Post-Coital Play.*

Not marked by any special behaviour. While the female has already begun her bathing the male launches forth into intensive acts of "politeness".

(*To be concluded*)

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THE SEVERN WILDFOWL TRUST—NOTES ON THE BREEDING SEASON 1952

By S. T. JOHNSTONE (Slimbridge, Glos., England)

This year, 72 species of waterfowl nested at the New Grounds, and representatives of 58 species were reared. Among the more interesting were Southern Red-billed Whistling Duck (nomenclature from *Key to the Wildfowl of the World*, by Peter Scott), White-faced Whistling Duck, Coscoroba Swan, Hawaiian Goose, Orinoco Goose, African Red-billed Pintail, Hawaiian Duck, Argentine Red Shoveler, Cape Shoveler, Brazilian Teal, Goosander, and North American Ruddy Duck.

HAWAIIAN GOOSE

A male and two females of this species were presented to the Trust by Mr. Herbert Shipman, of Hawaii. Both females laid in 1951, but owing to the late arrival of the male, the eggs were infertile. The 1952 season has proved more successful.

The first egg was laid on 18th February and four clutches were completed, totalling 19 eggs. Fourteen were set under Silkie × Buff-Rock hens, 9 of which were fertile and duly hatched. The incubation period varied from 29 to 31 days. The last clutch of five eggs was left under the parent goose, and although she did not desert, incubation must have been faulty. On the 28th day the eggs were found to be cold and subsequent examination proved that three fertile eggs had ceased to develop at an early stage.

An inch of snow covered the sitting boxes when the first goslings hatched and for four days they were kept in a warm brooder. Although three were very weak, all nine survived and are now fine healthy birds.

In addition to grazing, the birds fed well on a mash consisting of biscuit, fresh egg, and dried milk. Both watercress and milk thistle were supplied, the former being eaten in large quantities.

COSCOROBA SWAN

A pair of these birds laid one infertile egg in 1950 and commenced nesting in 1951, but were driven from their territory by a Grey Lag Goose.

In 1952 nest building started during the second week in January and in all, three nests were constructed. Both birds built, the male playing the greater part. The first egg was laid on 16th March and the clutch of four completed by the 21st. The female was at first allowed to incubate and during this period one egg disappeared. Meanwhile the male was particularly aggressive to other occupants of the pond and it was decided to remove the remaining three eggs which were transferred to a broody Silkie. One of these proved to be infertile and one addled, while the third hatched successfully on the 35th day.

The downy pattern of the young bird superficially resembled that of a Sheld-Duck, but with the characteristic head markings of a Tree duckling.

After fourteen days the "cygnet's" legs appeared to be under-developed and rachitic, and a course of calcium lactate and parathyroid extract was administered. The bird duly recovered and feathering was complete in three months.

Apart from the usual duckling mash, plenty of duckweed was supplied, together with a daily helping of dried ants' eggs.

NEWS FROM FINLAND

By C. AF ENEHJELM (Helsingfors, Finland)

I recently obtained a fine pair of Hawk-headed Parrots, but unfortunately lost the male—I believe. It was a great pity as I had hoped to try my hand at breeding them later on. I also received nine Quaker Parrakeets, apparently a very small subspecies, which I shall try to breed in the pheasantry next year.

Other new arrivals are a pair of Rock Pebblers, two pairs of Red-faced Lovebirds, an imported Bourke cock (I now have two pairs), five Bichenow Finches, and a pair of Quail Finches.

It has really been a very poor breeding season. About twenty Fischer's and three Peach-faced Lovebirds bred in the pheasantry. Abyssinians were sitting on two eggs on 1st December, but as it was very cold I had to take them inside.

For some reason it has been a Zebra Finch year. I have never been so successful with them. I have bred many normals, whites, fawns, and cinnamons. The only ones which refused were two pairs of a new mutation, with pure white underside, and without zebra markings. Last year I had a pair from Raymaekers and got two youngsters (a pair) from them, and of the same colour. This year neither pair did anything. A cock paired to a white hen gave me three cocks, normal-coloured. I bred lots of Indian Silverbills, and about ten Modest Finches (Plumheads); also some Cordon Bleus and Avadavats.

I have a very reliable strain of Painted Quail, and reared seven young from two pairs. I have not bred any birds of prey this year. As to parrot records, one of my friends in Denmark, H. Carlsson, bred one Abyssinian Lovebird: and with another friend, W. Langberg, one of the most experienced aviculturists in Denmark, a pair of Red-faced laid three eggs in a Budgerigar box and sat for some time—one egg was fertile. The pair was kept in a box-cage 30 inches by 15 inches by 20 inches in his birdroom.

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LONDON ZOO NOTES

By JOHN YEALLAND

During his stay in Uganda Mr. Lester, the Curator of Reptiles, paid a brief visit to Ruwenzori where, in the bamboo forest at about 8,000 feet, he succeeded in catching a pair of Regal Sunbirds (*Cinnyris regius*) and an immature Uganda Buff-breasted Sunbird (*C. venustus igneiventris*).

These Regal Sunbirds must be the first to reach Europe alive. From the Entebbe area he collected five Red-chested Sunbirds (*Nectarinia*

erythroceria), also new to the collection, and a pair of Harlequin Quail (*Coturnix delagorgei*). There are now twenty-four forms of African Sunbirds in the collection.

Another bird new to the collection is the Scarlet-bellied Senegal Parrot (*Poicephalus senegalus versteri*) presented by Mr. Prestwich. The Red-vented Parrot is another name for this bird, but neither is really appropriate, the relevant area being a deep orange rather than red, but the Orange-bellied of Bannerman is *P. s. mesotypus*, an intermediate form. A good coloured plate of *P. senegalus* and *P. s. versteri* is to be found in Bannerman's *Birds of Tropical West Africa*, vol ii, plate 15.

A pair of Razor-billed Curassows (*Mitu mitu*) have been presented by the Antwerp Zoo ; a pair of Indian Green-winged Doves (*Chalcophaps indicus*), and an American Wigeon (*Anas americana*) have been received in exchange.

* * *

BRITISH AVICULTURISTS' CLUB

The thirty-sixth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 14th January, 1953, following a dinner at 7 p.m.

Chairman : Dr. F. B. Lake.

Members of the Club : Mrs. J. R. Alderson, Miss P. Barclay-Smith, H.G. the Duke of Bedford, Miss K. Bonner, Mrs. V. M. Bourne, W. Brain, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, T. Crewes, A. H. D'Aeth, W. T. Dring, O. E. Dunmore, Miss S. A. Fothergill, T. Goodwin, H. J. Harman, H. J. Indge, F. T. Jones, Miss E. M. Knobel (Club Hostess), J. W. Lester, A. F. Moody, G. S. Mottershead, S. Murray, K. A. Norris, S. Porter, A. A. Prestwich, D. M. Reid-Henry, D. H. S. Risdon, R. C. J. Sawyer, E. N. T. Vane, H. Wallace Wood, J. J. Yealland.

Guests : Dr. K. W. Aylwin-Gibson, J. Bailey, Miss J. Crone, S. A. Croucher, F. G. M. Daulman, Mrs. W. T. Dring, Miss H. Gentry, Miss S. Goodwin, M. A. Lake, Miss P. Lawford, Mrs. J. W. Lester, D. M. Love, W. Love, M. Luther, Mrs. N. Masters, Mrs. S. Murray, J. G. Reincke, J. Targett, Miss M. White, Mrs. R. Winton.

Members of the Club, 33 ; guests, 20 ; total 53.

Before dinner members stood in silence for a few moments as a mark of respect to the memory of Madame Jeanne Derscheid.

The Chairman drew attention to the Red-sided Eclectus Parrot family exhibited by H. J. Indge. This consisted of the parent birds and a young male, believed to be the first bred in Great Britain.

The Chairman introduced the speaker for the evening, Mr. F. G. M. Daulman, of Imperial Chemical Industries, who then showed the

sound colour film "Control of Coccidiosis". This film, while primarily produced for the benefit of poultry-keepers, contained much of great interest to the aviculturist. A book of the film is available, free to members, on application to the Hon. Secretary.

The Duke of Bedford, Edward Vane, Terry Jones, Ken Norris, John Yealland, and D. M. Reid-Henry took part in the discussion that followed—Mr. Daulman very ably dealing with all questions. The Chairman gave a concise summary, and the spontaneous applause indicated that the proceedings had proved of considerable interest.

The next meeting of the Club is on **11th March, 1953.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

Miss Phyllis Barclay-Smith and Jean Delacour have been elected Corresponding Members of the South African Ornithological Society.

* * *

The two Eagle-Owls bred at Dudley Zoo last year were European, *not* Virginian as stated in *A.M.*, 1952, 188.

* * *

Kenneth Smith has been appointed Superintendent of the Paignton Zoological and Botanical Gardens. Members will be glad to hear that one of his chief aims is to increase the representation of bird species and avicultural interest in the Gardens.

* * *

Carl Johan Olsson, Gothenburg, Sweden, reports he has had a good breeding season: "I have had youngsters from Pigmy Doves, White Javas, White, Grey, Pied, and Fawn Zebras, Green Avadavats, Golden-breasted Waxbills, Cordon Bleus, Fire Finches, and Ruficaudas."

* * *

The importation of Parrots into Eire is now allowed provided certain regulations are observed. These birds are liable to a maximum period of six months' quarantine in the Dublin Zoo. Particulars may be obtained from the Superintendent, The Royal Zoological Society of Ireland, Phoenix Park, Dublin, Eire.

It is quite probable that Dr. Alan Lendon will be in England during the summer. He writes : " I hope to arrive in August and stay till about November or December. I shall look forward to meeting you and renewing my acquaintance with others whom I met in 1940-41. I hope to have time to see several zoos and private collections both in England and in America on my way home, although my trip is, of course, primarily surgical in nature."

* * *

H. J. Indge writes : " I am pleased to say the baby *Eclectus* left the nest after several days peering out, on Saturday, the 22nd November. He is as well-grown as an adult, the only difference being a darker shade of green, and with a smudged bill. It was an extremely cold day, and as I was going to the Olympia and feared he would not go back to the nest, I transferred the whole family to a flight cage in the birdroom, where they appear to have taken no notice of the change and seem to be doing well."

* * *

W. R. Carthew, Vereeniging, South Africa, owns a very extensive private zoo. In a recent letter he says : " The Quakers now have a large nest, but I am sorry to say I have only just discovered they are the worst cannibals I know. They are in a very large aviary where there are, or rather were, many other birds, doves and pheasants, etc., until last night. I had been finding numerous birds and pheasants just in pieces as if attacked by a swarm of rats, nothing left except feathers. I had put all this down to vermin which I had failed to locate. But last night I caught them with a Tambourine Dove. They actually ate all the flesh and carried all the bones to their nest where they broke them up. On further examination of the nest I was horrified to see what those parrakeets had done. The nest was literally crammed with bones, finely broken up and cleaned as no animal would."

* * *

WATERFOWL RINGING SCHEME—DETAILS OF RECOVERIES

<i>Date ringed.</i>	<i>Species.</i>	<i>Ringed by.</i>	<i>Date recovered.</i>	<i>Place where recovered.</i>
18.7.1950	Blue Snow Goose ♀	John Berry (Newport— Fife)	Oct., 1952	Auchterarder, probably shot.

A Snow Goose carrying the Society's ring was shot on 12th October, 1952, at the Lake of Lough Gur, Kilmallock, Co. Limerick. The boy who shot it became frightened at the approach of our informant and ran off before the number of the ring could be ascertained.

A. A. P.

* * *

REVIEWS

KING SOLOMON'S RING. By KONRAD Z. LORENZ. Messrs. Methuen and Co., Ltd., London, 1952. Price 15s. net.

Dr. Konrad Lorenz's work on animal behaviour is well known and his book, *King Solomon's Ring*, is one that everyone interested in natural history will wish to possess. It is an account of his observations, adventures, and experiments with his many animal companions, both pets and in the wild, at his home at Altenberg, near Vienna, and contains much information on animal psychology of great value, his observations on birds being of particular interest. In the chapter "Pitying animals" Dr. Lorenz stresses that sympathy for animals in captivity is in most cases entirely wasted but some aviculturists may not agree with his contention that Parrots and Cockatoos are unhappy prisoners in cages.

The book is written with that inimitable humour typical of Lorenz, which has in no way been lost by the translation, and is a delight to read. The many pen-and-ink sketches by the author with which the text is interspersed add greatly to its charm.

P. B-S.

ENJOYING THE COUNTRY. By E. FITCH DAGLISH. Messrs. Faber and Faber, London, 1952. Price 18s. net.

Mr. Fitch Daglish opens his book with a chapter on the best means of enjoying the countryside and what to do and what not to do to get the fullest enjoyment. He then takes his readers through the seasons of the year, giving much information and telling them in a clear and interesting manner what they should look for. As he says in his first chapter, in nature's year it is difficult to know where to start as January brings no significant change in the lives of our wild animals or plants. He comes to the conclusion that it seems rational to think of nature's year, like the farming year, as beginning with autumn and as reaching its finale in late summer. He therefore begins with bird movements in autumn, followed by "autumn colour", and "spider time" and continues through the seasons to high summer. There is much about birds in the book, in fact they claim the major part of the author's attention. The black and white illustrations are of the usual high standard expected from Mr. Fitch Daglish.

P. B-S.

* * *

NOTES

CORRIGENDA.

Volume 58, No. 6. Page 208, line 8, for *inhibit freezing* read *inhibit fleeing*. Page 213, line 21, for *homosexually* read *heterosexually*. Page 216, line 11, for *they are* read *there are*.

BREEDING BLUE MASKED LOVEBIRDS 1952

At the beginning of the season I had in my possession two pairs of Blue-bred Masked, two pairs of Blue Masked which I imported from the Continent in July, 1951, and one pair of Blues which I bred from a Blue-bred pair in 1951.

The Blue-breds consisted of one 1949 bred pair and one 1950 pair. The 1949 pair produced one Blue and one normal from the first nest. A second nest consisting of two Blues and two normals contracted some complaint, possibly coccidiosis, at about ten days and passed out. A third nest of fertile eggs failed to hatch out.

The 1951 pair of Blues, which turned out to be a true pair (brother and sister) had one nest of clear eggs and made no more attempts at breeding. I hope for better results next year from this pair as they are a fine, large, and vigorous pair of a size equal to imported normal Masked.

One of the imported Blue pairs went to nest and laid the first egg on 8th June, producing five eggs all of which proved to be fertile. The first egg hatched on 1st July and three others followed. A budgie nest-box was used with a layer of sawdust on the bottom and no moisture devices resorted to. Four strong birds were reared which are now hardly distinguishable from their parents and all are of a size equal to wild specimens. The old pair did not go to nest again until October and laid the first egg on 5th October, producing five eggs, all of which proved to be fertile. The first egg hatched on 29th October and two more followed, the last two eggs failing to hatch. Three strong birds are now commencing to fly and have withstood the recent cold spell in an outdoor aviary.

The second pair of Continental Blues have so far failed to breed but I am still hoping they will do so next year.

To sum up, I have bred eight Blues this year which together with my six Blues at the beginning of the season makes my total of Blues fourteen and puts me in a strong position for next season. At the same time I also have two blue-bred pairs. Incidentally, I find the Blues hardier, if anything, than the normals.

A. D. CAMPEY.

THE NATIONAL SHOW

The National Show continues to expand, the foreign exhibits this year approached the 400 mark, requiring the services of four judges. It was organized in conjunction with the Poultry Show, and entries to both sections were complementary to each other. No doubt many visitors found this a very acceptable arrangement.

There was a notable increase in the number of "Trade Exhibitors", which indicates that there is a growing realization of the importance of this Show as an annual venue of all bird lovers. As usual the organization worked with general efficiency. The only criticism overheard was with regard to the lighting during the evening in the gallery where the foreign section was situated. During the day, however, there was no justification for any dissatisfaction on this point.

With the removal of the ban on the importation of Parrots, a greater number, and variety of these birds was expected, but it takes time to convert newly imported birds into show specimens of national standard, and now that the ban is to be reimposed, this anticipated increase may never materialize. There was a large entry in Lovebirds, an excellent pair of Abyssinian taking first place; other species represented were Red-faced, Fischer's, Masked, and Peach-face. Several good exhibits were entered in the classes for Australian and Asiatic Parrakeets, a few South American specimens were also on view after many years' absence, but only one pair of Australian Grass Parrakeets—Elegants—put in an appearance. The class for Lories and Lorikeets was interesting, as it contained Mr. Williams' pair of Yellow-backed Lories, awarded best Parrot-like, also a pair of Musshenbroek's Lorikeets, probably the first ever benched, also an Ornate, a Forster's, and a pair of Swainson's. Other notable entries were Mr. Sawyer's Salmon-crested Cockatoo and a fine hybrid Macaw *militaris* × *ararauna*, and also a hybrid Pennant's × Goldmantled-Rosella.

The entry of small seed-eaters was enormous, several classes containing some thirty contestants. The quality throughout was good, the margin of difference between first and last being narrow. Among the most interesting were Mr. Sawyer's Green Twin-spots, best seed-eater—an outstanding Pin-tailed Nonpareil, a nice pair of Jackson's Wydah, several of the rarer Waxbills, Violet-eared, Dufresne's, and Black-cheeked.

The opening class among softbills was indeed exceptional, there being no less than 15 entries of Sunbirds and Humming Birds. Mr. Sawyer's Ruby and Topaz taking first prize, also the best foreign exhibit and supreme champion of the Show. Not content with that, Mr. Sawyer also took second and third prize in this class, with a pair of Amethyst Sunbirds, and a pair of Pucheran's Emerald Humming Birds. He repeated the performance in the next class, for small Tanagers and Sugar Birds, with a team of Black-headed, Yellow-winged, and Blue Sugar Birds. All these exhibits were faultlessly staged in most tastefully decorated surroundings.

One or two less common Tanagers, absent for many years, put in an appearance once more. There were also some beautiful Robin Chats, Starlings, and Thrushes, several Toucans and Touracos. No less than four Wilson's Birds of Paradise and a pair of Twelve-wired, Fairy Bluebirds, Pittas and Manakins, besides many other interesting exhibits too numerous to mention. Altogether a most excellent exhibition.

E. N. T. VANE.

* * *

CORRESPONDENCE

NESTING SITE OF *ERYTHRURA PSITTACEA*

Few, if any, books supply details regarding this. I am indebted to our member, Mr. Tom Goodwin of Ripley, for informing me that when he was collecting in New Caledonia in 1937 that a local French farmer accompanied him to show him where they nested. On approaching the spot he was shown a dozen or more nests, some with young in them. To his surprise they were situated in holes and crevices among rocks and quite near each other. Incidentally, he made an examination of the trees in the vicinity which were numerous but only three to four inches in diameter and perfectly sound. In a wild state these birds apparently nest in small colonies.

BIRDSACRE, LLANTARNAM, MON.

A. SILVER.

RISKS INVOLVED IN REMOVAL OF NESTING-BOX OF TURQUOISINE PARRAKEETS

The Duke of Bedford has the welfare of Grass Parrakeets so much at heart that I am surprised he should advise people not to let Turquoisines have three nests in succession, without first giving his readers *some* word of warning as to the grave risk of injury to the newly-fledged second brood if any attempt is made to remove the nest-box before the third clutch is just on the point of hatching.

The reason for this is that, unlike newly-fledged budgerigars—who just sit and look at you while you remove the nest box—newly-fledged Turquoisines are quite the wildest things imaginable, and remain so for at least a fortnight, with the result that if you are foolish enough to enter their aviary during this period you will be lucky indeed if they sustain no more serious injury than bleeding ceres and broken tail-feathers. Furthermore, by the time it is safe to enter the aviary and remove the nest box the hen will have been incubating her third clutch for more than a fortnight, as hen Turquoisines usually lay and start to sit several days *before* the youngest member of the previous brood leaves the nest. Incidentally I may say that I have on more than one occasion discussed with the Duke this problem of preventing a hen Turquoise going to nest for a third time in succession, but he had no solution to offer.

For those who, like myself, find themselves quite incapable of light-heartedly throwing away clutches of just-hatching Turquoise eggs, and finally decide to leave their mother to hatch and rear them, I have, I am glad to say, a grain of comfort to offset the Duke's gloomy prognostication as to the dire results of such folly.

We have a hen Turquoise at Keston who insists upon going to nest three times each season, and during the past few years has reared a large number of most excellent young ones. According to the Duke's theory this bird should certainly have died of exhaustion by now, yet, strange to say, she remains in what can only be described as rude health to this day. I touch wood as I write this, because, of course, she *may* suddenly get ill and die to-morrow; but this, as we all know, is liable to happen to any of one's birds, quite irrespective of the size or number of the broods they may, or may not, have reared in the past.

BRAMBLETYE, KESTON, KENT.

EDWARD BOOSEY.

(*The Editor does not accept responsibility for opinions expressed in articles or correspondence.*)

CANDIDATES FOR ELECTION

- W. BOOTH, Regat House, Lower Leigh Road, Daisy Hill, Westhoughton, Nr. Bolton, Lancs. Proposed by Miss K. Bonner.
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- W. BROADBENT, 13 Pine Grove, Southport, Lancs. Proposed by Miss K. Bonner.
- J. H. BURBRIDGE, Ambleside Water Gardens and Aviaries, Lower Weare, Axbridge, Somerset. Proposed by D. M. Coward.
- R. CHALLINOR, 387 Alton Street, Crewe, Cheshire. Proposed by Miss K. Bonner.
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- P. T. WALKER, Dan-Y-Bont, Gilwern, Nr. Abergavenny, Mon. Proposed by Miss K. Bonner.
- G. WOOD, 1 Ham Green Cottages, Wittersham, Nr. Tenterden, Kent. Proposed by Miss K. Bonner.

NEW MEMBERS

The twenty-one Candidates for Election, proposed in the November-December, 1952, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

READMITTED

- C. BEST, Bank House, Kirkgate, Newark, Notts.
- ALEX J. HARRIS, Jr., Route 1, Box 24, Pendleton, Virginia, U.S.A.
- PAUL E. SCHNEIDER, 5113 No. Acacia Street, San Gabriel, Calif., U.S.A.

DONATIONS

	£	s.	d.
J. SPEDAN LEWIS . . .	5	0	0
S. MURRAY . . .	2	0	0
H. COWLEY . . .	1	2	0
Mrs. J. DALZIEL BIRRELL . . .	1	0	0
D. M. COWARD . . .	1	0	0

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Hen Bourke Parrakeet suitable for breeding.—Particulars to R. KIRKHAM, The Gables, Wynnsward Park, Clonskeagh, Dublin, Eire.

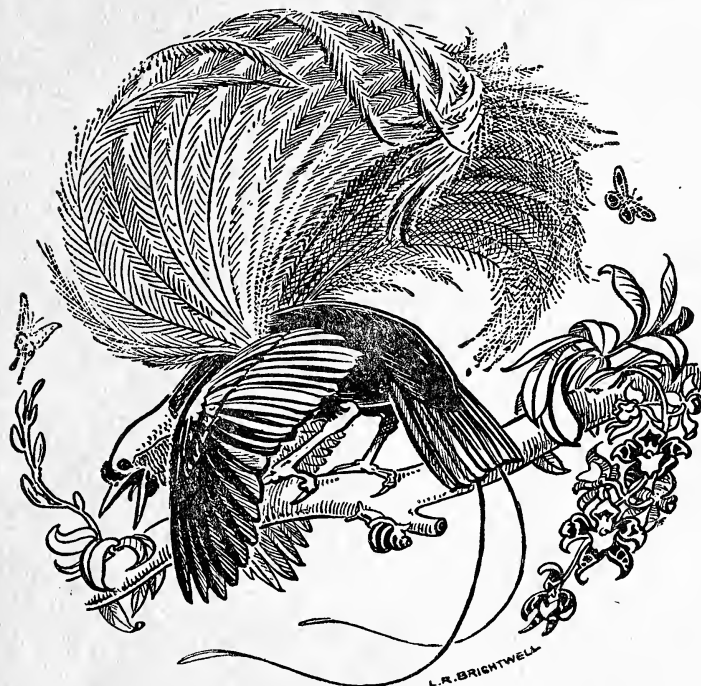
Has any member of the Society a Satyr Tragopan hen for disposal? One is very urgently needed by A. Fred Sturgis, 740 Sansom Street, Philadelphia 6, Pa., U.S.A.

Several copies *Aviculture*, vol. ii.—“All-Pets Magazine,” 18 Forest Avenue, Fond du Lac, Wisconsin, U.S.A.

Tame, healthy male Red-legged or Chukor Partridge, to purchase or borrow for season.—D. GOODWIN, Toft, Monk's Road, Virginia Water, Surrey.

Pair or trio of pure Amherst Pheasants.—A. A. PRESTWICH, 61 Chase Road, Oakwood, N. 14.

AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
Oakwood, London, N. 14.

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

Secretary-Treasurer : Ivo Lazzeroni, 5034 Templeton Street, Los Angeles 32,
California, U.S.A.

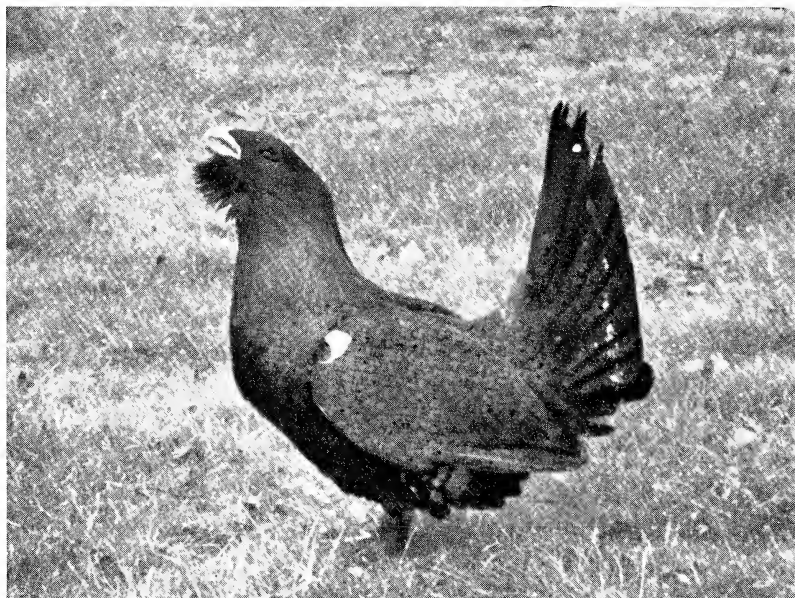
The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

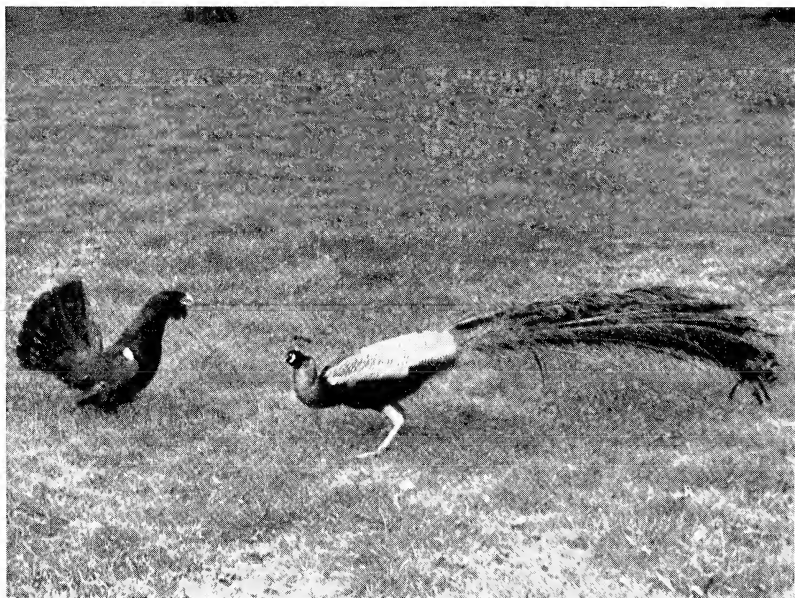
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The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford, England. Telephone : Hertford 2546-9.



CAPERCAILLIE CLICKING AND FANNING.



Copyright]

[S. H. Benson

CAPERCAILLIE PREPARES TO ATTACK A PEACOCK.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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MARCH-APRIL, 1953

THE CAPERCAILLIE IN CAPTIVITY

(*Tetrao urogallus*)

By S. H. BENSON, Director-Secretary, Zoological Society of Glasgow
and West of Scotland (Glasgow, Scotland)

When a poultry farmer in the County of Angus, Scotland, phoned me to say that he had trapped a Capercaillie cock bird (*Tetrao urogallus*), and that he wished to present it to our Gardens, I accepted his kind offer with some misgivings. It was in the last week of September, 1950, and the prospects of being able to provide an adequate supply of coniferous feeding throughout the winter were not good.

Although there are many areas of conifer woodland in Scotland, they are not convenient to the City of Glasgow, where our Gardens are situated. I was able, however, to have branches of pine and fir sent in for the first five weeks, and although the bird picked at them, one could not say that it tackled them with avidity, or showed as much preference as it did for the Indian corn (maize) and whole oats supplied by us, or the herbage and insects it got in the 1½ acre wood with thirty deciduous trees.

However, let us first of all consider the psychological attitude of this bird—very difficult to keep in captivity—in a strange and confined environment. In the wood were peafowl, guineafowl, wallaby, Egyptian Geese, Blue Snow Geese and Grey Lag. The Capercaillie moved about in an aloof attitude, at times aggressive. Its one ambition seemed to be to escape; one could not say that it was resigned to confinement.

Its attitude to visitors is one of expediency, and in competition with the other birds it gets a major share of tit-bits; I have noticed a very marked preference for potato crisps! Biscuit and bread are also eaten with relish.

In the winter, when it was thought that the Capercaillie could not live without pine needles, the bird managed finely with the food provided by us, even though it was deprived of herbage through frost and snow.

Following a letter I wrote to *The Field* on the subject of our unique Capercaillie, some rather interesting information followed in the columns of that publication. One writer said that it is evident that young Capercaillie, reared in Scotland, in the wild state, can get no pine needles until they are able to fly up to the tree tops. He knew of young Capercaillie broods going into fields of growing oats long before oats were ripe, and remaining there, feeding on oats and weed seeds, until the corn was cut. But this writer asserted that pine shoots form their winter reserve of food. Nobody doubts this under natural conditions, but our experience proves that the bird can live without coniferous food in the winter.

Dr. Ian D. Pennie, who has investigated the history and distribution of the Capercaillie in Scotland, mentions its reduction in its colonisation areas and its extinction in others, due to widespread felling of conifers caused by two world wars. There is evidence of changes in the Capercaillie habits. Younger plantations are now frequented and birds regularly visit stubbles to feed.

It now seems that we are witnessing a unique change in the habits of the Capercaillie ; a change which may have advanced somewhat farther than we realize. We may well assume that our success in keeping one so long is in some measure due to its being a product of the "new race".

Let us now consider the exhibition of a Capercaillie in a Zoological Garden where the great majority of visitors expect to see striking and exciting specimens. To many, the lonely, ungainly and somewhat unusual bird is interesting. Some think it is a bird of prey. However, the fact that it begs so successfully in face of competition assures the Capercaillie of an admiring audience.

In May, 1952, we were able to observe the display of the Capercaillie. It is a most impressive performance, and I think it is something that few can claim to have seen in the wild state. The neck is stretched and the tail is fanned vertically in a way that suggests the Turkey's nuptial performance ; wings are drooped and the bird struts about in a most hostile manner. Its aggressive attitude is no idle threat, for I have seen it attack our Peacocks and even advance on the keeper when he went into the wood.

The exhibition is not confined to action, and there is an unpleasant vocal accompaniment more suited to a mammal. The prelude to attack is a very clear click, and this call is repeated at frequent intervals. We have been trying to get a hen to keep our bird company but so far have been unsuccessful.

So far as I am aware our keeping of a Capercaillie so long (in a zoological garden) is a record, but it is not by any means a record for keeping them in captivity anywhere. I am most reliably informed that they have not only been kept for a number of years in Sweden,

but several young ones have been bred and reared. At the last International Conference of Zoological Societies, held last September in Rome, I was shown photographs of these birds in Sweden.

* * *

TWO OLD BIRDS

By THE DUKE OF BEDFORD (Woburn, Beds, England)

It is not often that a Parrot-like bird dies in one's collection of genuine old age. If the management is good it is, indeed, the owner who may first succumb to that universal malady !

This summer I have, however, lost two cock Roseate Cockatoos from this cause, but there was rather a remarkable difference in the manner of their going. One, tame and a talker, I acquired a few years ago from the Zoo, where he had doubtless been a number of years, probably after a similar, or longer, period in other hands. He was at first wing-stiff from long caging, but soon recovered the power of flight and he bred a few weeks later, and continued to breed until this season, when he had no mate.

He remained in good spirits and perfect plumage until a few weeks ago, when he began to spend an abnormal amount of time in the shelter and did not seem as active as usual. His appetite remained good, and he brightened up a bit in the high temperature of the hospital, readily greeting his friends with conversation, but he never got really right, and died before he seemed well enough to turn out again.

The other cock—a non-albino white—I obtained, with an albino hen, about 25 years ago. For some seasons they bred, producing always grey young, but they stopped doing so about sixteen years ago. The cock began very slowly to show signs of age. When I brought my birds to Woburn I decided to fly him at liberty in the hope of rejuvenating him. Complete liberty sometimes has a marvellously rejuvenating effect on birds that have aged prematurely owing to close confinement in a cage, but it did not make much difference to the old Roseate, doubtless because he had long been living in an aviary which allowed a decent amount of exercise. He behaved sensibly, and stayed round the aviaries, but never flew about very much. He also became slowly more feeble and after my aviary attendant had found him one day on the ground, and unable to make his way home, I decided that he would have to end his days in an aviary. The way he hung on to life, not only for months, but even for years, was, however, extraordinary. His plumage became very abnormal, his once-white wings growing more and more pink. He also never had a proper moult, but always had some feathers in quill.

Most of his time he spent sleeping, but the weather did not seem to trouble him, and he would often sit, by choice, in cold, drenching rain, when a cosy shelter was available. His companion at this time was a hen Malabar Parrakeet for whom I have never been able to secure a mate. I thought they would agree together as she would be too small to hurt him, and he would be too decrepit to hurt her. They not only agreed, but formed an attachment for one another—the strangest, most amusing, and most pathetic I have ever known among birds. “*Amor omnia vincit*” was certainly true in their case. There were differences in size, the Cockatoo being about four times as big as the Parrakeet. Their language was wholly different. Their courtship technique was wholly different. A courting Roseate preens his feathers as an invitation to his lady-love to return the compliment, and also to allow him to preen hers; but he does not feed her. A courting Malabar does not preen his lady’s feathers, but he does feed her. That the Malabar should have made advances to the Roseate in spite of these difficulties was not so very strange, as lonely spinsters, with or without feathers, *do* sometimes try and make the best of *very* unpromising material! What was extraordinary was that the poor old Cockatoo, with one foot in the grave, and not within a hundred miles of any capacity to be in breeding condition, not only understood the Malabar’s affectionate intentions, but appreciated and was flattered by them, trying bravely “to be young for her sake”! When she made advances to him he would perk up and make nibbling movements with his beak, as Roseates do when feeling friendly. He would also start preening and she, partly understanding what was required of her even though it was not at all what the instinct of her species taught her, would pull his feathers in a clumsy but gentle fashion, an attention which pleased him very much.

The sad time at last came, however, when it seemed kinder to have the old man put to sleep as, if he fell off the perch, as he sometimes did, he was only able to regain it with great difficulty.

* * *

NOTES ON THE GREEN GLOSSY STARLING

(*Lamprocolius chalybeus*)

By BETTY ADAMSON (Slough, Bucks, England)

Glossy Starlings have appealed to me ever since I first saw them at the Zoo as a child, but I did not keep any myself until May, 1951, when I was given a Purple Starling, *Lamprocolius purpureus*, and subsequently purchased an orange-eyed Green Glossy Starling, of whose specific name I was not sure, as a companion for it. There was no sign of pairing between them during the summer, as I half hoped there might be, and later behaviour showed them both to be males.

In November, I acquired another pair of green Starlings, slightly larger and with yellow eyes. Derek Goodwin has examined and compared notes on the plumage of the three green Starlings with skins at the Natural History Museum and has come to the conclusion that they are all the same species, *Lamprocolius chalybeus*, and that the orange eye colour is an individual or local difference, although the books give "yellow" as the eye colour for all races of *L. chalybeus*.

The first owner of the yellow-eyed birds did not know if they were a true pair, and certainly there were no external differences except that one had a permanently ruffled patch of feathers on the breast and was, perhaps, a fraction smaller. They were in very good condition, so I introduced them straight away into an aviary 15 feet by 22 feet, with a shelter 8 feet square, whose other inhabitants were the Starlings mentioned previously, a pair of Blackbirds, several British finches, a pair of Barbary Doves, and a pair of Budgerigars.

They all agreed quite well together during the winter, although the green pair speedily established superiority over the other insectivorous birds, they did not molest them unduly. By March, however, they were becoming decidedly aggressive, and harried the Purple Starling in a disturbing manner, but did not take so much notice of the orange-eyed Starling or the Blackbirds. After one particularly bad scuffle I decided to put them in an adjoining aviary occupied solely by a hen Jackdaw. This aviary was only 6 feet wide by 14 feet long, plus a shelter 5 feet by 8 feet.

Inside the shelter I nailed up a budgerigar nest-box, with the door at the front left open, and both birds showed interest in it but made no attempt to carry nesting material. I had seen the cock offering mealworms to the hen, who accepted and ate them, although occasionally she would return the mealworm to the cock and it would pass between them several times before she ate it. They had also tugged at string securing the perches, as if with nest-building intentions.

On 1st May I nailed up a parrakeet style nest-box, 8 inches square and 12 inches deep. By the next evening a heap of twigs and dried grass had been added. On 3rd May I provided two old sparrow nests, dried leaves and more twigs and saw the female carrying feathers and string to the nest, but she made no attempt to enter while I was present. I did not see the cock carrying any material.

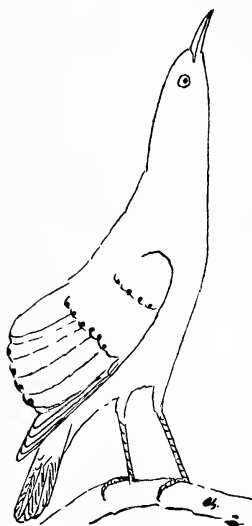
By this time the Jackdaw was very wary of the Starlings and they would not allow her into the shelter to feed. On 5th May I came home in the evening just in time to rescue her from what, I think, would have been certain death, as she was lying on her back on the ground shrieking with fear, with both Starlings pecking at her fiercely, and so engrossed were they in their murderous task that I had to go right inside the aviary to chase them off.

Left to themselves the Starlings spent a lot of time displaying to

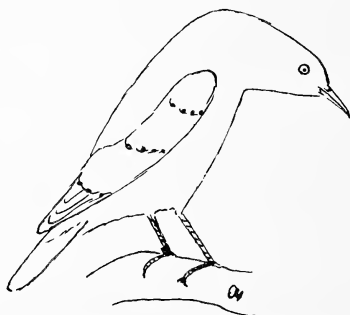
each other and the cock would go into aggressive display against the Starlings in the other aviary whenever they approached the dividing netting. There are two common postures which seem to merit full description since they do not appear to have been previously described.

(1) *The threat-display*.—When threatening a rival the male bird holds himself erect, with head stretched upwards and the wings held so that the secondary feathers, with their dark velvety spots, are somewhat spread and fully exhibited in a lateral plane. In this posture the wings (without being opened) are constantly moved with a quick, upward-flicking movement and the irides rapidly contract and dilate.

(2) *The greeting-display*.—When one of the paired Starlings is approached by its mate it often greets it by lowering its head and uttering a note rather similar to, and undoubtedly derived from, the begging-note of the juvenile. This would appear to be in the nature of a friendly greeting and, like so many displays signifying friendliness or submissiveness, it is very obviously the “opposite” of the hostile threat-display.



Lamprocolius chalybeus ♂ in “threat-display” posture.



Lamprocolius chalybeus in “greeting-display” posture.

On 12th May, having seen no evidence of nest building for three days, I provided fresh moss and dried grass, but this was not used, although a few blades of fresh green grass were added. The next day I threw down some small bits of cotton wool which both cock and hen collected and took into the nest. Early in the morning of the following day (14th May) I put in a handful of white and brown duck

and pigeon feathers which were pounced upon by both birds with much chattering and obvious excitement. By evening the nest was well lined with feathers, and the hen roosted in the nest box for the first time.

On 15th May the hen laid a soft-shelled egg at midday, so I immediately supplied plenty of crushed cuttle-bone and egg-shell. She roosted in the nest-box again that night, but on the following three nights slept on a perch beside the cock. The next three nights she spent in the nest-box and on 22nd May I found an egg, a delicate shade of turquoise-blue mottled with irregular brown splotches. Three more eggs were laid on successive days, all before 1.30 p.m., and one definitely before 10 a.m., but the hen did not commence to sit tightly until the fourth egg was laid.

The cock took no part in incubating the eggs. The hen would come off the nest whenever I appeared—regularly at 8.30 a.m., 1 p.m., and several times after 6 p.m.—in order to claim her share of mealworms. Indeed, if no mealworms were forthcoming she seemed not at all anxious to return. By now both birds were entirely insectivorous, ignoring their usual food which I continued to offer fresh daily, and eating very little fruit. If the hen spent too long off the nest—and towards the end of the incubation period I had time to notice that she frequently spent spells of five to ten minutes away—the cock became very worried and would stretch out his head and neck and run towards her, chattering at the same time, as if trying to persuade her to return to the nest.

On 5th June, exactly fourteen days after the first egg had been laid, one egg hatched, and the chick could be heard squeaking faintly, by 8 a.m. The second hatched between 1 p.m. and 6.30 p.m. the same day; the third before 7 a.m. on 6th June, and the fourth between that time and 7 a.m. 7th June. I looked at the nest once every day in the early morning, when the hen's attention was occupied by mealworms; the young gaped strongly as soon as the lid of the nest box was raised, but I resisted the temptation to handle them. Six days after hatching all four appeared very healthy and there was nothing to choose between them in size; quill ridges were visible under the wing flesh. The female was still feeding them on maggots, and had now commenced to feed large mealworms, ignoring the smaller mealworms and *Tribolium destructor* larvae with which she had been supplied at first. By this time I had put down for this one pair of birds and their four young, about 6,000 *Tribolium destructor* larvae, 2 lb. of mealworms (about 7,000), and 3,500 blow-fly larvae. This seems a staggering amount, but I have under- rather than over-estimated the numbers. Some of the insects were wasted, as I found the hen much keener on picking up insects off the ground than sorting them out of a bowl and so, although the bowls of mealworms

and maggots were always present, five or six times a day I threw down a handful of mixed larvae, quite a few of which no doubt escaped.

The hen was a very enthusiastic feeder, often gathering a dozen maggots or mealworms in her bill at once, but the cock did not feel the call of parental duty very strongly, and would visit the young only occasionally, and then only with one mealworm. He would, however, visit the hen when she was sitting on the eggs or brooding the young, and give her much vocal encouragement.

The seventeenth night after the young had hatched was the last night the hen roosted in the nest box; from then onward she slept on a perch beside the cock. The young looked ready to leave the nest, with their flight feathers well grown and tail feathers about an inch long. I now began to feed a lot of mealworm pupae as well as large larvae and both birds showed a strong preference for feeding their offspring on the pupae, and maggots were taken very seldom. They began to use a harsh, rasping call that I had never heard before, particularly in the early morning and at dusk. By 27th June, twenty-two days after hatching, I was becoming worried as the young were showing no interest in the outside world and their parents were cutting down on food supplies, presumably in an attempt to entice the young birds out. Also the weather had become intolerably hot and the temperature inside the box was well over 100° F. For the first time I handled the young and found three quite big and strong but one very thin and weak. At midday I hand-fed them on bread and milk. At 6 p.m. one young bird was out of the nest and was able to fly a little. He roosted that night on a low perch. The next day was even hotter and I found the weakest Starling dead. I removed the other two from the box and placed them on the shelter floor where they ran around quite actively but were unable to fly; by night, however, they had managed to flutter on to a low perch.

The hen appeared to do all the feeding but often received no response from the young birds. She would lightly tap the beak, and if the bird did not gape immediately, tap its legs gently. If there was still no response, she would go to another bird and repeat the performance, but if, as seemed to happen very often, none of the young would accept the insects in her bill, she would follow them round in a very agitated manner.

By the evening of the next day one bird was very weak, and kept falling on to its side, so I brought it into the house and gave it a dose of brandy and water—a “cure all” for bird complaints, in my opinion. The weather was still extremely hot and the next day, three days after leaving the nest, the lustiest youngster—which had left the nest of its own accord and had begun to fly quite strongly—was found in the evening huddled in a corner on the ground, although at midday it had appeared perfectly well. That too was brought into the house, given

brandy, and caged with the other which now looked stronger, though we had to resort to forcible hand-feeding. The remaining bird looked all right, and roosted beside its father on a high perch.

But alas, next morning the bird we had brought into the house the previous evening was dead and the one left in the aviary was lying on the floor. It failed to respond to any treatment and died within half an hour. The first one to fall sick seemed much brighter but several times that day had bouts of lying on its side and "breathing its last". Each time, however, we managed to revive it with brandy, and it is now a strong bird, having undergone its first moult during October.

I sent one of the corpses for a *post mortem* examination, but owing to the heat the body was too decomposed for the cause of death to be ascertained. The pathologist did, however, suggest that the heat may have had something to do with it, and yet it seems extraordinary that a bird which comes from a tropical climate should succumb to an English heat-wave.

The parent birds continued to visit the nest-box and to add bits of nesting material; feathers, dried grass, etc., and also fresh green grass which I saw the cock pull up with his beak. Several times the cock attempted to mate with the hen when they were picking up mealworms that I had thrown on the ground, and this was the only pairing I witnessed. There was a minor domestic drama before the arrival of the next egg. The orange-eyed Starling in the adjoining aviary had for some time been "making eyes" at the hen whenever she left her family, and when once they were gone he redoubled his efforts to attract her away from her husband. He would run backwards and forwards on the ground beside the wire separating them, then fly to his nest-box, at the same time chattering and calling to her. She seemed quite ready to follow if only the netting had not been in the way, and would run along the ground on her side while her husband pursued her and did his best to get between her and the other cock. But the purple-headed Starling at no time showed interest in "the lady next door".

On 12th July a soft-shelled egg was laid at noon and the hen roosted in the nest-box at night. On 15th July I did not look into the nest box until 6 o'clock in the evening and I then found one egg which was misshapen, being very elongate and pointed. This egg was incubated for sixteen days, but failed to hatch.

On 10th August the hen laid again, just one egg, and this hatched in thirteen days. The young bird thrived and left the nest twenty-three days after hatching. It was out of the nest by 8 a.m. and scuttling round the floor when I appeared, but it did not fly for three days, sleeping on the floor in a corner of the shelter. On the fourth night it roosted on a low perch and from then on made great progress.

The weather was cold with several sharp frosts at night, but the bird seemed unperturbed. The survivor of the previous nest, however, whom I had transferred to a cage in the other aviary shelter, was so miserable, shivering with puffed-out plumage, that I decided to keep him in a cage in the house for the winter.

Ten days after her offspring had left the nest it became obvious that the hen was going to lay again. In feeding the cock had again played only a small part and whereas the hen would gather a bill full of mealworms and deliberately seek out the young bird and feed it, the cock only fed the young bird if it was near him and actually begging for food. Even then he would pick up only one mealworm at a time. As the hen lost interest in him, so the young Starling became weaker; he sat near the mealworm bowl and asked for food whenever one of his parents flew down, but they fed him in a perfunctory and unwilling fashion, and although he had begun to examine food of his own accord and would, I think, have commenced to pick up satisfactorily in another few days, his increasing weakness made it difficult for him to balance when trying to pick up a mealworm. On 27th September an egg was in the nest by 12.30 p.m., and the young bird was so much weaker that I forcibly fed it twice on bread and milk and mealworms. The following day a second egg was laid by 11 a.m., and I removed the young Starling and caged him with the other young one who had now commenced to moult and had become very quiet, but was eating well.

Two days before this next lot of eggs were due to hatch the aviary roof was repaired and the hen was off the nest for over three hours, being replaced by a hot-water bottle. I hadn't much hope of the eggs hatching, as the weather was extremely cold and the hen seemed to spend even longer intervals away from the nest than she had done previously, so I was greatly surprised to find a chick in the nest at 8.30 a.m. on 11th October. The second chick was just out of the shell when I looked in the nest at 10.30 a.m. the following day. This egg shell was not removed until noon, when I saw the cock fly out carrying half the shell which he proffered to the hen as though offering a mealworm. She did not take it from him, however, and he then flew down to the ground and ate some of it. This was the only time I saw the shell removed and eaten, but as I never found any traces of the other egg shells, I presume they must all have been treated in the same way.

The day was overcast and cold, and my joy at the successful hatching was somewhat tempered by the fact that the hen did not appear to share my pleasure, and spent very little time with her offspring. The following evening one had disappeared and the other felt cold, but was still alive the next morning when I brought it into the house to try to hand-rear it. Unfortunately I was not successful.

At the time of writing (December) the two young birds that did survive are spending the winter in a large cage in our kitchen, and judging by the amount of their "singing" are both cocks. The last-hatched has only just commenced to warble properly, but for some weeks has been emitting the most awful, harsh, nerve-racking squawks in an effort to find his voice. Like budgerigars they appear to be stimulated by certain noises such as a kettle boiling and food frying. It is at times quite difficult to make oneself heard.

A brief note on the general feeding of the Starlings may be of interest. Their staple diet consists of Sluis' Universal food, Rudd's Anteggo, bread and milk, and fruit, pear being the favourite. A handful of mealworms or maggots is thrown down twice a day. The birds also relish scrambled egg, cake crumbs and other odds and ends from the household table. They were outside all last winter with only slight heat supplied by an electric tubular heater on the very coldest nights. This year they have had no heat at all and appear quite fit, although we have had some extremely cold weather.

The insects offered to the pair when rearing young were all species that infest various foodstuffs and of which I am able to obtain fairly large quantities through my work. Larvae of the following species were used :

Carpophilus dimidiatus—Corn-sap beetle.

Tribolium destructor—Dark flour beetle.

Alphitobius laevigatus—Lesser mealworm.

Tenebrio molitor—Mealworm.

Ephestia kuehniella—Mill moth.

Three species of blow-fly.

The first mentioned, *C. dimidiatus*, is easily cultured on a mixture of 18 parts rolled oats to 1 part dried yeast powder, and if kept at a temperature of 25° C. (77° F.) will produce large numbers of soft-bodied white larvae, about 5 mm. long, in two to three weeks. I imagine they would be extremely suitable for small, delicate, insectivorous birds.

Cockroaches were offered on several occasions, but never accepted.

My thanks are due to Derek Goodwin, not only for kindly supplying the line drawings, but also for much helpful advice on the preparation of this article and management of the birds generally.

THE BIRDS OF LAKE MÝVATN, ICELAND

By JOHN YEALLAND (London, England)

Lake Mývatn is situated in north-eastern Iceland, some 55 miles by road from the town of Akureyri and at about 1,000 feet above sea-level. The lake is indeed a beautiful place in a country of much scenic grandeur and there can be few comparable places in the world where waterfowl of thirteen species breed in such numbers or in such a concentration.

The main reasons for this would seem to be the abundance of food, the comparative scarcity of natural enemies, and the suitability of the nesting terrain on the shores, on the islands and about the surrounding streams. The ducks are never shot but are carefully preserved for the egg harvest.

All the land around the lake and every island, however small, belongs to one farm or another, and the ducks' nests are robbed of all but four eggs, though great care is taken that no bird deserts because of the belief that it will re-nest on someone else's land. The eggs are a considerable source of income to the farmers, who must make a return of the numbers taken to the Inland Revenue authorities for the purpose of income tax.

Thus it would be impossible to ascertain exactly how many eggs are taken annually because no doubt the official returns err on the side of modesty, but it must amount to some thousands.

It might be thought that this egg-collecting must be disastrous for the birds, but evidently that is not so, for the mortality among the ducklings is very high, mainly, it would appear, for the reason that many of them lose sight of their mothers, so that unless they are able to join on to another family—and most ducklings are, of course, often hostile to newcomers—they soon perish from the cold. If, therefore, the mothers are unable to care for four it is unlikely that they would be appreciably more successful with a normal brood.

Also, of course, the taking of eggs has been going on for many years, yet it would seem that the area could scarcely support a much greater population than the present one.

The chief natural enemies are the Raven (*Corvus c. corax*) and the Greater Black-backed Gull (*Larus marinus*), neither of them common. I once saw a pair of these gulls attacking a duck far out on the lake. The duck was trying to escape by diving, but its course under the very clear water was easily followed by the gulls which pounced upon it whenever it came to the surface. At length they caught it and then set about trying to drown it—and dreadful it was to see the unhappy bird striving to get its head up for air.

The Ravens sometimes take sitting birds, but the remains of ducks and their eggs are not a common sight.

I think it is correct to say that the birds of prey (the Iceland Falcon, Snowy Owl, etc.) which seem to be rare round about the lake, for I did not see one, and the Arctic Fox, which is shot by the farmers, feed more on the Ptarmigan than on the ducks. The name Mývatn means the lake of gnats or midges—and very appropriate the name is, for these and small flies are present in the summer in many millions. Mercifully they do not bite, but on a sunny day they swarm in such clouds that it is sometimes difficult to see where to step. While I was there in June a 24-hour blizzard killed off many of these insects so that life for the ensuing week became more agreeable.

These insects with their larvae and pupae must form a large part of the diet of the birds; there is also a species of caddis-fly, the larvae of which are attached to the submerged lava boulders, and some water-snails.

Reykjahlid on the northern side of the lake is perhaps the best place for seeing the nesting birds. A mile or so off shore is the pretty island of Slutness, a favourite nesting place, as is a tip of land on the further side wherever the ground is carpeted by the dwarf birch with moss growing up between its foot high twiggy branches.

The lake in this area is no more than five or six feet deep, and here it seemed that the Long-tailed Duck (*Clangula hyemalis*) was more common than elsewhere, and at another place a few miles off Barrow's Golden-eye (*Bucephala islandica*) was more plentiful; another was more favoured by the Common Scoter (*Melanitta n. nigra*) and in another there seemed to be more Tufted (*Aythya fuligula*) than anywhere else.

The most common duck of all was the Scaup (*Aythya m. marila*) and it may be that these preferences for certain localities is determined by the nesting terrain rather than by any food factor.

Red-breasted Merganser (*Mergus serrator*), Wigeon (*Anas penelope*), Pintail (*A. a. acuta*), Gadwall (*A. s. strepera*)—said to have become more common within the past 40 years—Teal (*A. c. crecca*), and Mallard (*A. p. platyrhynchos*) also nest here.

A certain amount of indiscriminate laying of eggs seems to take place, single ones being laid far from any nest, and once I found a nest with nineteen Scaup eggs in it and a Long-tailed Duck sitting on four of its own and four Scoter eggs. Barrow's Golden-eye normally nests in holes or crevices in the lava rocks but on Slutness one was sitting under the bushes, the nest being rendered very conspicuous by the heap of pale grey down. I was shown a cavern with perpendicular sides in which a Barrow's once nested on a ledge, the young being unable to get out until rescued by a kindly farmer.

Contrary to the impression conveyed by a drawing of Mývatn in Millais' *British Diving Ducks*, the Harlequin Duck (*Histrionicus h.*

histrionicus) is rarely if ever present on the lake itself, but, like the Goosander (*Mergus m. merganser*), inhabits the fast running streams and rivers, particularly those with islands in them, which flow in or out of the lake. At one place on the southern side Harlequin Ducks may be seen from the road. These strikingly handsome birds are tame, allowing one to approach quite near and then not taking flight but swimming off downstream.

It is strange that they possess such quiet voices, for they must scarcely be able to hear one another amid the rushing waters of their favourite nesting places.

Within a few feet of the shore at Reykjahlid were two nests of the pretty Slavonian Grebe (*Podiceps auritus*) and on Slutness in a crevasse in the lava was a nest of the Iceland Redwing (*Turdus musicus coburni*) with newly hatched young, while in a loose stone wall a White Wagtail (*Motacilla a. alba*) had its nest. Here the Red-necked Phalarope (*Phalaropus lobatus*) was a common bird and one nest with the husband dutifully sitting was found. The Arctic Tern (*Sterna macrura*) is also common and the nest, always placed in conspicuous position, would yet be difficult to find because of the coloration of the eggs if the parent birds did not betray their presence by mobbing the intruder. The Northern Golden Plover (*Pluvialis apricaria altifrons*) is quite common, small flocks often being accompanied by Dunlins—the form intermediate between *Calidris a. alpina* and *C. a. schinzii*. The Faroe Snipe (*Capella gallinago faroeensis*) and the Whimbrel (*Numenius p. phaeopus*) are sometimes to be seen round about the lake ; also a few Black-headed Gulls (*Larus r. ridibundus*).

In rocky places the Snow Buntings (*Plectrophenax n. nivalis*) were nesting and the males performing the pretty display flight ; the Wheatear—intermediate between *Ænanthe æ. ænanthe* and *Æ. æ. leucorrhoa*—seemed quite rare, as was the Meadow Pipit (*Anthus pratensis*).

One Red-throated Diver (*Colymbus stellatus*) was seen and another heard ; a single specimen of the Kentish Plover (*Leucopolijs a. alexandrinus*) was also seen, but perhaps the rarest of the summer visitors to Mývatn was a single drake American Wigeon (*Anas americana*) flying in company with two females which may or may not have been this or the Common Wigeon.

In Reykjavik the Mallard is common on the small lakes within the city and very tame ; the graceful Arctic Tern is also common. On an island in the bay there is a colony of Eiders, not seen, but presumed to be *Somateria m. mollissima*, nesting as elsewhere in artificial nests provided for the purpose of collecting the down. The journey by road from Reykjavik to Akureyri (285 miles) is of great interest. Whooper Swans (*Cygnus c. cygnus*), Grey Lag-Geese (*Anser a. anser*), a few Whimbrel and Golden Plover, and one or two of the Iceland Redshank

(*Tringa totanus robusta*) were seen. One unforgettable picture was presented by some Eiders flying over a small lake against a background of blue-grey mountain.

* * *

ON RE-MATING PSITTACINE BIRDS

By EDWARD BOOSEY (Keston, Kent, England)

For some years we had a cock Alexandrine Parrakeet mated to a hen lutino Ringneck, and they produced several broods of rather handsome hybrids which were about intermediate in size between their two parents, and had light biscuit-brown wing-patches instead of the maroon-red ones of an Alexandrine.

Last year I decided to mate their mother to a cock lutino Ringneck, and their father to a hen Alexandrine bred by Captain Veitch, and the latter mating produced a brood of three excellent young Alexandrines. The cock Alexandrine, however, recently died, and I decided to mate the hen to one of the male hybrids ; a mating which (if the inheritance is a sex-linked one) ought to produce a percentage of lutino hen hybrids which would be three-quarter Alexandrines.

After allowing the Alexandrine hen a decent interval in which to mourn her late husband, I introduced the male hybrid into her aviary, which is of our cockatoo type, without an enclosed shelter, but with the back and third of the top and sides boarded over. The meeting was, on the hen's part, frigid in the extreme, and she regarded the unfortunate cock with a glassy stare worthy of a disapproving Duchess in a novel by Ouida. Although she did not actually pursue him about the aviary, as a Broadtail would have, she lunged at him if he ventured anywhere near her, and would not allow him under the sheltered part of the aviary at all.

I then moved them both into an aviary of quite a different type with an enclosed shelter, and at once the hen was perfectly amicable with him, even when shut in the shelter at night. After three weeks or so, thinking they had got quite used to each other, and that the hen might breed better in her old aviary, I put them back in it, and immediately the hen became as hostile to him as before, glaring at him as though he were a complete and highly undesirable stranger. Once more I transferred them to the other aviary and once more peace reigned, this time with her actually making advances to him !

One may say that the hen's behaviour was strange—and so it was—but I suppose it is only on a par with the widow who marries again, and doesn't mind living with her new husband in a new house, but couldn't bear the thought of doing the same thing in the old one—which would "have associations" for her !

This matter of association is very strong in birds ; it is clear that the hen Alexandrine associated her old aviary so strongly with her former husband, and the covered part of it with where her last year's brood was reared that, while the new cock was permitted to sit unmolested in the open part of the aviary, he must on no account be allowed under the covered part where the nest-box used to hang. Taken away from these familiar surroundings her hostile attitude towards him ceased immediately.

It is for this reason that it is so important in the case of really aggressive parrakeets such as Broadtails never to put a newly acquired hen into a cock's aviary, particularly of course if he has recently lost his wife. Even if he has not been previously mated he will be apt to resent the sudden appearance of a hen in his aviary, and will be quite capable of scalping her unless a careful watch is kept to see that they agree.

The best plan is to put the hen in an aviary by herself for several weeks—preferably in sight of the cock—and then put *him* in *her* aviary, where he will feel like a new boy at school and will be too busy exploring his unfamiliar surroundings to attack the hen.

Of the Broadtails I have kept I have found Brown's Parrakeets by far the most difficult to re-mate, and one of the most deadly aggressors if they happen to disapprove of the partner you offer them, so anyone possessing these rare and beautiful parrakeets would be wise to take every precaution when re-mating them, or even when mating them for the first time. Before the war we had at Keston a wonderful breeding pair of Brown's who reared a large number of young ones during the years we had them, and when eventually the hen died, the cock was very pathetic and quite inconsolable and indeed did not long survive his wife. Any hope of re-mating him was quite out of the question as he savagely attacked any hen that was put with him. Such constancy among parrakeets must be rare.

At the other end of the scale, Stanleys, as well as being the smallest and one of the most attractive of the Broadtails are by far the easiest to re-mate.

Grass parrakeets usually are quite easy to mate or to re-mate, though Turquoisines are, as they are at all times, the most inclined to squabble.

Redrump Parrakeets may be "faithful unto death" but that, I fear, is as far as their faithfulness goes, as I have found that members of either sex are only too willing to clasp to their bosoms, with almost indecent haste, any reasonably presentable partner that is offered to them !

I would say that most Cockatoos are quite easy to re-mate, and in my experience Lesser Sulphur-crested, and Citron-crested, and perhaps to a lesser extent Leadbeater's, usually regard a new partner without any great show of interest. Roseates, on the other hand, are more demonstrative and therefore more amusing, and, if

the meeting is a success—as it usually is—they go through the strangest antics ; raising and lowering their crests ; preening each other's crests ; and the cock, apparently desiring to admire his fiancée's profile from either side, never climbs or flies *over* her, but invariably tries to climb *under* her, often falling off in the process ; this being the signal for much raucous screaming and agitated raising of crests !

Blue-fronted Amazon Parrots, and other members of the Amazon family, are capricious : sometimes a newly introduced cock and hen will take to each other almost at once, slowly approaching each other along the perch with wings slightly lowered and thrust forward (presumably to display the differing colours at the bend of the wing as a sex-recognition sign), head feathers raised, and eyes blazing, the latter apparently being used to denote either anger or pleasure, and if, having met, they sit side by side and putting their heads in the air, utter their extraordinarily varied assortment of chortling cries—you can assume that they approve of each other. Sometimes, however, a pair will eye each other with suspicion—even for several weeks—although they may eventually become perfectly good friends. There is usually no risk to life and limb so long as they have plenty of room to keep out of each other's way, but on no account should they be confined together in at all a small space.

African Grey Parrots are a different proposition altogether, being temperamentally quite unlike any other member of the parrot family. When one has been living by itself in an aviary and another is put with it, there is seldom any sort of demonstration on either side ; dead silence reigns while they eye each other warily, though contriving to maintain an air of boredom. Suddenly one or both will give vent to one of their rudest noises or else a shrill whistle, and then again there will be silence, while they both look apprehensively round as much as to say " Who made that noise " ?

After a long interval of inactivity, the original occupant of the aviary may sometimes be seen sidling in a slow and sinister manner towards the newcomer, and at this point, if the latter stays put and has not the sense to remove itself out of harm's way to another perch, it should be rescued before it gets hurt. If, however, it gets out of the light, and the birds are not in a confined space, it is usually safe to leave them together. Even if they prove to be a true pair, a state of armed neutrality may be expected to persist for several days or even longer, and it is only when you see them, with locked beaks, pumping their heads rapidly up and down, that you can be sure you have got a true pair and if, after this friendly demonstration, the cock gives the hen a sly nip on the leg, causing her to squawk with pain, there is nothing to worry about, for it is all part of a Grey Parrot's strange courtship !

BREEDING RESULTS, SEPTEMBER, 1952— JANUARY, 1953, AT DIEP RIVER, S. AFRICA

By ALLAN FRANK (Diep River, Cape Town, S. Africa)

My main aviary accommodation consists of a large planted aviary measuring 75 feet long, 50 feet wide, 10 feet high, in which are built two sheds measuring 30 feet by 9 feet by 8 feet high, and 10 feet by 9 feet by 8 feet high respectively. The aviary is well planted with flowering trees and shrubs, with a miniature rivulet winding throughout its length.

The breeding season in this part of the country takes place from September to February ; some of the Australian species continue breeding up to June. In this aviary, I keep quite a large selection of both soft bills and hard bills, which include approximately 120 different species. The following species have been bred and successfully reared during the period mentioned above, i.e. September, 1952, to January, 1953 : Blue-breasted Waxbills, Little Ruddies, Scathy-headed Weavers, Melba Finches, Grey Java Sparrows, Golden Sparrow, Spice Birds, Tricolour Nuns, Cuban Finches, Long-tailed Grass Finches, Silver-eared Mesia, and Silver-blue Tanagers.

A pair of Pekin Robins nested and hatched two chicks but, unfortunately, owing to some disturbance or other, the chicks died after five days. I am glad to say, however, that another pair of Pekin Robins is at present sitting on two eggs.

I obtained a pair of Silver-eared Mesias (*Mesia argenteauris* Hodgson) three years ago, and during breeding season before last, that is, 1950–51, these birds went to nest no less than three times and on each occasion two eggs were laid and the young successfully hatched, but it was found that after five to six days, the chicks died. Then last breeding season, this pair of Silver-eared Mesias went to nest in September in a "Morning Glory" creeper. The chicks were hatched and the parents neglected them after three days.

In October they went to nest again in a Loquat tree where again the chicks were hatched and died after seven days. In December, 1952, they again went to nest and built a deep cup-shape nest of broad leaves lined with coir in the fork of a peach tree situated 5 feet from the ground ; two eggs of a pale blue colour, blotched at the thick end with brown, were laid, and were successfully hatched. (Incubation period uncertain.) After three days, one of the chicks was found dead on the ground under the nest and had evidently been removed by the parents. The remaining chick was well catered for by the parents and was fed on mealworms which were placed in a small box attached to one of the branches of the peach tree, into which a dozen mealworms were placed five times a day. On the tenth day, the chick

left the nest, but was unable to fly very well, and the parents fed this chick on the ground. I am happy to state that the young Mesia is now fully grown and it would appear that, under better conditions, that is, without interference from other birds, it would be quite easy to breed this species in captivity.

My Silver-blue Tanagers went to nest on approximately 18th November, laying three eggs of a very faint blue texture, blotched with brown at the thick end. They built a shallow-cupped nest of twigs lined with coir in a dry bush, which was fixed to one of the aviary supports and about 5 feet from the ground. The incubation period is uncertain, but I would say approximately 17 days. Three chicks were hatched, which left the nest after fifteen days. The chicks were fed by the parents on mealworms and termites. Some difficulty was experienced in feeding these mealworms to the parents, owing to the large collection contained in the aviary; however, this was overcome by placing a small wooden tray 3 feet below the nest in which a small quantity of mealworms were placed five times a day. The young Tanagers were of a drab silver-blue colour when leaving the nest, and they are now flying about in a healthy condition.

It would appear that this species breeds quite freely and the parents are now again sitting, but unfortunately this time their nest is built in a "Morning Glory" creeper, 9 feet from the ground. Consequently it is impossible to make full observations.

* * *

PARRAKEET EYE DISEASE

By Dr. F. B. LAKE (Kingston-on-Thames, England)

Contagious conjunctivitis has long been the bane of those interested in the Australasian parrakeets. Practically confined to newly imported birds of the more desirable species, the disease has ruined many a precious consignment. Formerly it was almost invariably fatal. The bird arrived with a "sticky eye" or developed one shortly after arrival, and despite all the owner could do, progressed slowly but inexorably to a fatal termination some weeks or months later.

There have, however, been some reports of cures. John Yealland cured some of the larger parrakeets years ago with instillations of mercury perchloride, but did not succeed with Grass Parrakeets. Mr. Vane has had success with sulphonamides. David West senior cured a Many-coloured with aureomycin and yellow oxide of mercury, and Mr. T. Holmes Watkins a Splendid with sulphonilimide. I believe there have also been successes with penicillin.

I recently had the opportunity of investigating and treating six cases of this disease, and whilst these do not provide sufficient data for final

conclusions, I think the results sufficiently suggestive to be of some value. Of these six birds, four are cured, one probably cured, but still under observation, and one still under treatment at the time of writing.

The clinical appearance of affected birds is fairly constant. The disease begins as a slight thickening of the margin of the eyelids, sometimes with some beading of the smooth edge of the lid, so that the lid margin, almost invisible in health, becomes an obvious thickened rim round the open eye. There is slight, usually watery, discharge, sometimes so little as to be hardly noticeable. The bird blinks frequently and rubs its eyes on the perches. After a time the eyelids and tissues of the orbit exhibit a watery swelling which displaces the feathers from the margin of the eye, and leaves a ring of bare puffy skin round the eye. Finally the swelling becomes gross, the eye cannot fully be opened, the lids are often stuck together in the mornings by dried discharge, which tends to become more abundant and purulent, and is frequently rubbed off on to the perches or the plumage of the bird's shoulders. The unfortunate bird may linger on in this state for several weeks before death ensues.

Of the various remedies now available, sulphonamides such as sulphonilimide are effective against a number of bacteria which may infect the eye. Penicillin is effective against a considerably larger number and the new drugs aureomycin and chloromycetin are effective against nearly all the organisms causing conjunctivitis in man, with a few exceptions. Antiseptics such as $\frac{1}{2}$ per cent zinc sulphate, 1/10000 perchloride of mercury, or 5 per cent silver protienate may be employed with some effect in cases which do not respond to the new remedies.

If the germ responsible can be cultured from the infected eye, the bacteriologist will report on its sensitivity to the antibiotic drugs, and so one knows at once which to select, and what prospect of success one has. Failing such a culture, one can try one after another until one finds a remedy to which the particular infection is sensitive.

The eyes of the birds I treated were swabbed with dry sterile cotton wool, using an ordinary medical throat swab, and the swabs sent to a pathology laboratory for culture. Partly I think, because of the technical difficulty of getting a good smear of a small bird's eye, and partly because I was obliged to send my specimens by post, in only two cases was a pathogenic organism isolated. These rather surprisingly grew a penicillin-resistant strain of staphylococcus aureus. *Staph. aureus* is a common septic organism of world wide distribution, causing a variety of septic infections in man and animals. Most strains are highly sensitive to penicillin, a few (such as this one) are penicillin-resistant, and these usually respond to aureomycin or chloromycetin. Staphylococci are not usually affected by sulphonamides, and a case cured by sulphonilimide must have been infected with some other organism.

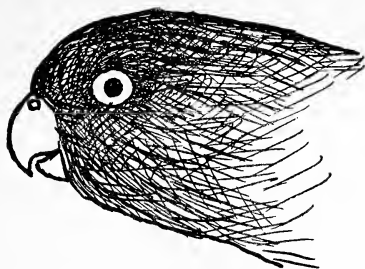


FIG. 1.—HEALTHY.

The lid margin is hardly visible. The plumage closely surrounds the eye.

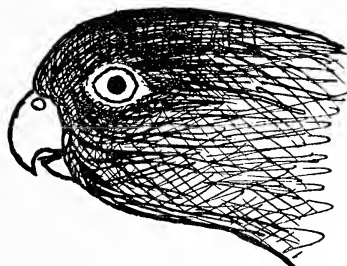


FIG. 2.—MODERATE EYE DISEASE.

The lid margin is thickened and a little swollen bare skin is visible. This stage may last a very long time.

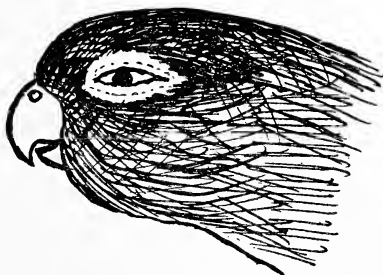


FIG. 3.—SEVERE EYE DISEASE.

There is gross swelling of the orbit—displacing the plumage. The eye cannot be fully opened.

To consider my cases in detail :—

(1) Hen Barraband. Advanced disease in one eye ; the other normal. Culture failed to grow. Various antibiotics tried successively—at first as a *spray* applied several times daily. With penicillin the condition became worse. With $\frac{1}{2}$ per cent zinc sulphate no improvement. Suspension of aureomycin produced temporary improvement, but failed to make further progress after three weeks. Chloromycetin, $\frac{1}{4}$ per cent spray showed no change, and the disease appeared in the other eye.

The bird was then, after three months of experiments, rather worse than when she arrived. The disease had been somewhat checked in the bad eye, but had started in the originally healthy one. I then, almost in despair, tried a new and improved preparation of chloromycetin which had just come on to the market. This was far too expensive to apply as a spray and I was forced to catch the bird daily and put the preparation directly into the eyes with a dropper. This proved to be the secret. With the much more effective concentration of the drug obtained, and the mechanical washing out of the pus by repeating the dropping every minute for five minutes, once daily, a rapid improvement occurred and the bird was well in a fortnight.

I had at first been obsessed with the idea that I must avoid daily catching, for fear that the bird's general health would not stand so much handling. When I eventually had to do it, I found this fear quite groundless, providing one used a very small cage into which one could put one's hand and take the bird without fuss and with no room for the bird to hurt itself trying to evade capture.

Cases (2) (3) (4) treated together. Another hen Barraband and two Crimson-wings. All had moderately severe disease of both eyes. From the Barraband and one of the Crimson-wings a germ was successfully cultured and reported as "*Staphylococcus aureus*", resistant to sulphonamides and penicillin, sensitive to chloromycetin, and very sensitive to aureomycin. From this report aureomycin was obviously the treatment of choice, and was applied by dropping the eyes once daily with a suspension of aureomycin powder in distilled water, 40 milligrammes in 5 c.c. All responded well. The Crimson-wings were cured in three weeks. The Barraband, however, twice developed a severe enteritis (she had loose droppings on arrival), and her treatment had to be suspended whilst she was given heat, and sulphamezathine in her drinking water for the enteritis. She is probably cured now, but has not been under observation long enough after cessation of treatment to be sure.

Cases (5) (6) Bourkes Parrakeets. Both had been treated before arrival with sulphonilimide, without improvement. Cultures failed to grow.

(5) had slight thickening of the eyelids and hardly any discharge. It was cured after two weeks daily dropping with aureomycin.

(6) had mild disease in one eye, and fairly severe disease in the other. It improved very very slowly, and after three weeks had made so little progress that (in the absence of any bacteriological report to help) it was thought penicillin might be worth a trial, and in three days penicillin drops produced definite improvement. The bird then unfortunately became severely ill and had to spend two weeks in the hospital cage, with suspension of treatment, and both eyes relapsed. It is now under treatment again and improving slowly, but had a great deal of lost ground to make up. The large parrakeets were held in the hand and a drop put in each eye, each minute for five minutes. The Bourkes proved too frail to endure this and I was obliged to be content with one drop in each eye and immediate return to the cage. This, I think, was the reason for the relative failure of aureomycin in case (6).

In all cases cure was only assumed if the bird had been observed for at least two weeks without treatment and showed no sign of recurrence of thickening of the eyelids in that time.

Although most of my cases were infected with penicillin-resistant organisms, I think it improbable that this represents the usual state of affairs. Penicillin is highly effective against most strains of staphylococci and against most germs that sulphonamides will kill, although not quite all. Aureomycin is the antibiotic of widest range and is effective against nearly all bacteria likely to cause conjunctivitis. It is, however, in short supply in the United Kingdom; chloromycetin, available here, is nearly as good. Penicillin, being non-irritant and very freely soluble, would be best for penicillin-sensitive cases—as probably the majority are. Sulphonamides would be effective in a fair number of cases, but not against staphylococci, so that there seems little to be gained by trying them before proceeding to penicillin or the 'mycins'. In conclusion, it seems established, that parrakeet eye disease is a septic conjunctivitis which can be caused by staphylococcus aureus, and probably by a number of other septic organisms as well. Why it should be confined to a few species of Australasian parrakeets, is difficult to explain. It may perhaps be due to inherent lack of resistance in these birds rather than a species-specific infection. It should be curable in most cases by systematic dropping with a suitable antibiotic. I think it would be best to try penicillin first, and if no improvement is noticed in, say, one week, to proceed to aureomycin or chloromycetin—one or the other of these drugs is likely to prove effective.

I am most grateful to those members who have entrusted me with their sick birds for this investigation and hope that the results may be of some help in the future management of this disease. Of course more cases need to be investigated before final conclusions can be drawn.

BREEDING ACCOUNT OF THE RED-SIDED ECLECTUS PARROT

(*Lorius roratus pectoralis*)

By H. J. INDGE (Thorpe, Surrey, England)

A batch of twelve Eclectus Parrots arrived on the 13th April, 1952 ; ten Red-sided and two Grand. The latter were taken by one of our lady members, and within a few days I transferred all the Red-sided to various outdoor enclosures. I took them out each morning and brought them back to the bird-room each evening. It may be interesting to know that I took each on my finger for these trips. One day, one of the cocks took wing, and although he made no elevation, he flew quite a hundred feet, with beautiful outstretched wings. I believe he was the only full-winged bird among them, so I transferred him, together with the most promising-looking hen, to an aviary to themselves and left them out altogether. This must have been very early in May, and although we had several frosts that month, the birds were not any the worse for it, even though they had no artificial heat.

By the middle of June the hen had taken to the nest-box, coming out occasionally, and by the end of June she stayed in the whole time, coming out only for a few minutes a day. How many visits were made to the box, to look through the inspection hole, I don't know ; each time the hen came off, I should say, until we nearly tired of looking and believed the hen was just pretending. However, just once more—that was the 29th July—lo ! and behold ! an egg ! The next day another !

Immediately the hen sat tight, coming off only for the bare necessities about twice a day, when she moved no further than a foot from the entrance. Each time we had the chance to inspect, we did, and know for a positive fact that one egg hatched on the 24th August and the second the next day. We had a chance to watch the chicks for a few days, and then one disappeared ; probably died and was flattened out. The inspection hole was such that we could see into the nest through a tiny aperture, but could not, nor would not, interfere further.

They were born devoid of down, just like budgerigars, and at thirteen days we noticed a light grey fluff, darkening to the darkest grey and appearing to have the texture of the coat of a woolly monkey. At five weeks a feather, like an emerald, could be seen on the back, and from then on he feathered quickly ; well, as far as quickly goes with Eclectus Parrots.

On the 20th November, he left the nest, after having spent three or four days in contemplation. I wanted to go to the National Show and as a severe frost seemed likely, I took him and his parents, and

placed them in a flight in the birdroom. A risk, I know, but all went well, and a fortnight later, he was picking up food for himself.

The aviary in which the parents lived was 12 feet by 6 feet by 7 feet high. The cock spent most of his day in the shelter, indulging in a couple of flights around the aviary daily, but always ready to answer the hen's call for food. This was a strange, high-pitched affair, which could be heard 500 yards away, and she started calling right from the time she first went into the box, until I took them into the birdroom—some 5 months.

During the whole of that time, the cock was seen to go into the box only twice, once for about two minutes, and the other time for as many seconds. The hen always came to the entrance hole to be fed. She seemed to have the parental love of a mammal rather than of a bird, but then, there is something so very different about an *Eclectus*.

She never flew, as her flights were clipped, and even now that the new feathers have grown, she has never taken wing. About a fortnight ago I decided to separate them, but the family seemed so dejected, that they were united again.

During the time the youngster was being fed, I gave a quantity of green food, but I never particularized, just picked whatever came to my hand in the garden, in the way of weeds, and also marigold and forget-me-nots, both leaves and flowers. I was reluctant to give fruit, although just occasionally I gave a grape or piece of apple. The seed mixture consisted of sunflower and canary.

The youngster was slightly darker than his father, with a horn-coloured bill. Now, except for the tip of the bill still having a smudge, there is no difference.

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LONDON ZOO NOTES

By JOHN YEALLAND

On reading in a Nigerian newspaper that one of the orange-bellied sub-species of the Senegal Parrot had been presented by Mr. Prestwich, Sgt. F. W. White of the Military Hospital, Kaduna, wrote offering the gift of three more which also proved to be *P. s. versteri*.

These birds came from quite near the range of the doubtfully distinct *P. s. mesotypus*, called by Sclater in *Systema Avium Æthiopicarum* the Kano Yellow-vented Parrot.

A male Hawaiian Duck (*Anas platyrhynchos wyvilliana*), new to the collection, has been presented by the Severn Wildfowl Trust; a Cape Teal (*Anas capensis*) by Mr. Terry Jones, and a pretty Tree Sparrow, the Cinnamon (*Passer rutilans cinnamomeus*) by Mr. Trevor Crewes. A Leadbeater's Cockatoo (*Kakatoe leadbeateri*); a Southern Puffin

(*Fratercula arctica grabae*), and two Northern Guillemots (*Uria aalge*) have also been presented.

An interesting parrot probably not seen in this country for many years, and called variously the Red-throated, White-fronted, or Jamaican (*Amazona collaria*), and a Red and Yellow Macaw (*Ara chloroptera*) have been deposited; an Illiger's Macaw (*Ara maracana*) received in exchange and a Bengal Pitta (*Pitta brachyura*) purchased.

Three Sun-birds new to the collection have been received from Messrs. Seago and Bloom; they are the Kenya Violet-backed (*Anthreptes longuemarei orientalis*); the Abyssinian Mariqua (*Cinnyris mariquensis osiris*), and the Somali Scarlet-chested (*Chalcomitra hunteri*).

A single egg of the Ceylon Fish Owls which have nested unsuccessfully during several previous winters again proved infertile, as have six Emu eggs, the seventh containing a chick which died at an early stage of development.

Two Black-footed Penguins have so far been reared, and the Great Eagle-Owls and New Zealand Sheld-Duck are now nesting.

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BRITISH AVICULTURISTS' CLUB

The thirty-seventh meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 11th March, 1953, following a dinner at 7 p.m.

Chairman: Miss P. Barclay-Smith.

Members of the Club: Mrs. J. R. Alderson, H.G. the Duke of Bedford, B. Benedict, Miss K. Bonner, Mrs. V. M. Bourne, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, Mrs. F. D. Cooper, T. Crewes, P. L. Dabner, Sir Godfrey Davis, W. T. Dring, Mrs. W. T. Dring, B. H. Dulanty, O. E. Dunmore, A. Ezra (Patron), J. F. M. Floyd, J. C. Garratt, W. O. Gilbert, Mrs. W. O. Gilbert, T. Goodwin, F. Grant, H. J. Harman, Dr. E. Hindle, Major E. F. Housden, G. T. Iles, F. E. B. Johnson, F. T. Jones, Miss M. H. Knobel-Harman, J. W. Lester, D. R. Lovell, C. J. Morny, G. S. Mottershead, H. Murray, S. Murray, K. A. Norris, S. Porter, A. A. Prestwich, D. M. Reid-Henry, R. C. J. Sawyer, J. L. Sears, D. Seth-Smith, K. J. Smith, E. O. Squire, P. Sutton, J. A. Swan, R. A. Taylor, E. H. Tong, E. N. T. Vane, C. H. Wastell, Professor J. Wheatley, Mrs. J. Wheatley, H. Wilmot, J. J. Yealland.

Guests of the Club: Field-Marshal the Viscount Alanbrooke, Professor J. Berlioz.

Guests: Mrs. M. E. Armitage, D. S. Armitage, Miss A. J. Avery, Dr. K. W. Aylwin-Gibson, J. Bailey, P. Bates, Mrs. B. Benedict, Dr. C. P. Blacker, P. B. Bloomer, Miss J. Crone, J. Culihan, W. Cummings,

Lady Davis, Miss I. Dix, Miss K. Dring, T. W. Dring, L. Ellis, Commander R. Eyre, Mrs. R. Eyre, Mrs. J. C. Garratt, Miss H. Gentry, Mrs. F. Grant, Mrs. E. F. Housden, Miss M. Kirkby-Mason, F. W. Luck, H. M. Luther, P. Marshall, Mrs. N. Masters, Mrs. R. Maurice, Mrs. C. J. Morny, Mrs. S. Murray, R. N. Sanders, Mrs. R. N. Sanders, Mrs. D. Seth-Smith, Mrs. R. Sharpe, Mrs. P. Sutton, Mrs. J. A. Swan, Mrs. R. A. Taylor, Mrs. E. H. Tong, Miss M. White, Mrs. H. Wilmot, A. J. Woods, Mrs. I. Wren.

Members of the Club, 56 ; guests, 45 ; total, 101.

The Chairman, opening the meeting, said she had very great pleasure in welcoming Professor Berlioz, of the Paris Natural History Museum, who was the world's foremost authority on Humming Birds. Professor Berlioz, in response, said he was delighted to have the opportunity of attending a Club meeting.

On introducing Viscount Alanbrooke, the Chairman said the Club greatly appreciated that amidst his many official duties he had found time to pay a second visit. The appreciation was the more obvious by virtue of the fact that the attendance was easily a record.

Viscount Alanbrooke showed his two new colour films, "Waders" and "The Flamingoes of the Camargue". The former, taken on Hilbre Island, Dee Estuary, showed a large variety of wading birds. The sequence of a Curlew preening with salt water was of special interest. Viscount Alanbrooke gave an amusing account of the difficulty experienced in locating the Flamingoes. Due to disturbance, possibly by low flying aircraft, they had moved to new breeding grounds. The Camargue is apparently threatened by various reclamation schemes, but French ornithologists will, of course, make every possible effort to preserve this exceptionally interesting area.

There were some good slow-motion pictures of Flamingoes in flight ; and in the close-ups it was interesting to note the striking variation in the size of nesting birds. There were also some good shots of the Bee-eater.

The excellence of the films was only matched by the commentary, and at the end the large audience showed by its sustained applause that it had indeed appreciated Viscount Alanbrooke's efforts.

The next meeting of the Club is on **13th May, 1953.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

The Ministry of Agriculture and Fisheries (Animal Health Division) has decided to reimpose the ban on the importation of Parrots. The Order, "Parrots and Miscellaneous Birds (Prohibition of Importation) Order, 1953," came into force on 16th February, 1953. Copies of the Order, price 2*d.*, may be obtained from H.M. Stationery Office, York House, Kingsway, W.C. 2.

Until further notice "No person shall import into Great Britain from any other country or part of a country any bird to which this Order applies", namely, "live birds of any of the following descriptions, that is to say—birds of the species Psittaciformes, including any of the birds commonly called parrots, parrakeets, budgerigars, lovebirds, macaws, cockatoos, cockatiels, conures, lories, and lorikeets."

In addition to preventing the spread of ornithosis (sometimes called psittacosis), the regulations are aimed at safeguarding the country's poultry flocks against the introduction of fowl pest from abroad.

* * *

Peter Scott, accompanied by his wife, has flown to South America. They are bound for Tierra del Fuego, where, during the next two months, they will study the breeding habits of certain South American waterfowl—especially the Bronze-winged and Torrent Ducks.

* * *

W. H. Turner writes: "Sir Edward Hallstrom now has eight hybrids from Hooded cocks and Many-coloured hens: the result being so much like the Paradise Parrot it is hard to tell the difference between these and a mounted skin of the Paradise. At present they are only young, but by appearance there seems to be male and female in them. It is, of course, not yet possible to tell whether they will be fertile and it will be interesting to follow on with the breeding."

A. A. P.

* * *

REVIEW

LOVEBIRDS AND PARROTTLETS. By L. P. LUKE. *Cage Birds*, London, 1952. Price 8*s.* 6*d.* net.

The host of birdkeepers to whom Lovebirds and Parrotlets have recently become available for the first time will find much to interest and instruct them in the proper care and management of these delightful subjects in captivity in Mr. Luke's new book.

It is somewhat confusing, however, when the author points out the well nigh impossibility of sexing certain species and then paradoxically proceeds to enumerate eight features to enable one to determine the

sexes, some of which have proved quite unreliable. Similarly, he quite correctly states that the Peachfaced has no eye-ring, yet the colour plate shows a distinct white area round the eye. On this plate the Redfaced appears to be an undersized Peachface and the eye-rings of the Blackcheek and Masked are comparatively too small.

Several historical facts are not correct. The Blue Masked first appeared in this country some four or five years prior to its arrival in the United States. The Lutino Nyasa has never been bred in this country. The Blackcheek, far from being the most commonly met with to-day, is along with the Madagascar and Nyasa, practically unobtainable owing to export restrictions in its country of origin, no importer secured a consignment during the raising of the ban.

Such inaccuracies must lead to confusion among beginners and irritation to more knowledgeable readers; a great pity in view of the invaluable worth of the chapters on management, aviary construction, and behaviour in captivity.

E. N. T. V.

* * *

NOTES

BARBARY DOVES

Mr. Derek Goodwin's interesting article on the Barbary Dove brought to mind my early and pleasant experiences with this species.

In California they are very frequently sold under the name of Ring-neck Dove. As they are very cheap to buy they are often the species the novice first undertakes. They were among the first birds I purchased as a very young boy—and I can well remember my first pair costing the sum of a dollar—a rather sizeable sum for an eleven-year-old.

My one pair bred well and in a short period of time I had many more Barbary Doves than I could possibly use. Because most pet stores were already filled to overflowing with them (what price must dealers have paid for them to sell a pair for a dollar?) it was virtually impossible to get rid of one's surplus.

We used to let a few out in the garden—and they stayed very well. Unfortunately for the Barbary Dove the cats would invariably reduce their numbers. The Barbary Doves aided and abetted the cats in their destruction by conveniently sitting on garage and aviary roofs—"sitting ducks" for their enemy.

One fall, when we had about eight youngsters to dispose of, we caught them up and released them on a ranch some six miles away. This ranch was in a locality where California Quail and the California Mourning Dove abounded, and so it was felt that the Barbary Doves would have a good chance to succeed. Their homing instinct was nil for none of the eight returned to their home aviaries. Whether any of the released birds lived and/or bred I am unable to say.

Occasionally one sees a Barbary or two in with groups of other pigeons or doves. At the San Juan Capistrano Mission (some seventy miles from Los Angeles) the Barbary Dove apparently breeds right at the Mission. The Mission gardens abound with pigeons and also a few Barbary Doves—all very tame as they are constantly fed by visitors. In downtown Los Angeles' Pershing Square I have seen Barbary Doves associating with common pigeons—and apparently thriving.

I might add that we formerly raised many hybrids between a male Barbary and a female California Mourning Dove. The Mourning Dove we inherited from a friend who had found it with a damaged wing. The wing healed, and the bird (which had been kept in an outside aviary) refused to leave when it was released.

Instead it brought back a mate and we trapped the pair and subsequently reared many young. The youngsters were usually released and they would generally stay for a few days and then wander away. When the male Mourning Dove died we replaced him with a male Barbary Dove, and this arrangement certainly suited the hen for they instantly began family operations.

It might be of interest to note that this female California Mourning Dove was a known eleven years old when she finally died. She bred right up to her death, though in her last years sometimes only a single chick would be raised.

The Chinese Necklace Dove is firmly established around the Los Angeles area. I see it very frequently—and it certainly appears to be as common as the local California Mourning Dove, at least in our locality. It not infrequently associates with the Mourning Dove, small mixed groups of four, five, or six being seen feeding in vacant lots, etc. The Chinese Dove appears rather intelligent for pairs around frequently fly into our garage for spilled grains—a feat the local Mourning Dove has never accomplished.

The Chinese Necklace Dove is a very desirable addition and doubtless a good sporting bird. There is a pair which nests in a pear tree in our yard—and they usually nest several times a year.

From memory I believe a rather detailed history of this bird in California has recently appeared in the *Condor*, Journal of the Cooper Ornithological Club.

DAVID M. WEST.

* * *

CORRESPONDENCE

THE PROBLEM OF THIRD BROODS OF PARRAKEETS

In regard to Mr. Boosey's letter about Turquoisines, I certainly should not attempt to haul a nest-box out of the aviary when the young are at their wildest stage.

There are however, methods of avoiding undue damage to the young and at the same time of preventing the hen from rearing a third brood.

With the rarer and more timid Grass Parrakeets I am coming back to my original view that the roof of the aviary should have an inner lining of string netting and, in addition, before the young of even the first brood have left the nest, a good thick screen of branches should be tacked on to the wire-netting over the whole end of the flight to prevent them crashing against that.

Coming now to the problem of the third brood, when the second brood are still in the nest and the hen has not yet started to lay her third clutch, you can remove the cock and also, if you like, the second nest-box. In order to encourage the hen to make a good job of finishing feeding the second brood single-handed, she should be given more hemp than it is usually safe to give Turquoisines and also an abundant supply of the choicest seeding grass. The cock should be placed in a cage in the bird-room and fed on very plain seed and green food, a combination of circumstances which will encourage him to go out of breeding condition and start moulting. He should not be put in another aviary as he will be more restless there and call continually to the hen and he may also, very likely, pick up some deadly microbe, as late summer is the time when these pests are most virulent. When the right time is thought to have arrived to take the young birds away from their mother (they have got to be moved *some time*), you can also remove the nest-box and put the cock back with his mate and she, too, will not be long in dropping into moult while the weather is still good.

An alternative plan is to leave both parents in the aviary and, when the last young one of the second brood has left the nest a few days, go in and net the whole brood as quickly as you can before they have time to do themselves serious damage. Put them in a cage in the bird-room and cover the whole floor of the cage with seed and seeding grass and keep the bird-room at a comfortably warm temperature. There is little doubt, if they are healthy and well-reared, that they will start feeding adequately as soon as they begin to get hungry but, if you like, you can put with them a young Budgerigar which has started to feed itself freely, in order to give them a lead. When

they are feeding freely and have steadied down a bit they can be put back in an aviary, being first confined to the shelter for a day or two so that they grow accustomed to it and know where to find the food. It is, of course, necessary that their new aviary should have the same arrangements with regard to protection of the roof and end of the flight. There they can remain happily until they moult into adult plumage and begin to quarrel ; or (as is much more likely, as Mr. Boosey is as well aware as I), until they die of pneumonia or nephritis ; get clawed by a sparrowhawk ; or fall a victim to X's latest practical joke ! When the young are out of the parents' aviary, you can, of course, remove the nest, and the third clutch of eggs which Lovebirds may take if you have any.

Mr. Boosey mentions a hen he has had for several years which has reared three broods each season, but can he tell us how many hens he has lost before they have put up this satisfactory record and how many young of the third broods have matured into good breeding stock ?

There are, no doubt, hundreds of hen Budgerigars which have reared three or more broods in a season and survived for a reasonable period, but that does not alter the fact that it is the almost universal practice of breeders who want to produce stock of the highest quality to limit the number of nests to two.

BEDFORD.

CROWHOLT, WOBURN,
BLETCHLEY, BUCKS.

FOOD OF PARRAKEETS

I was very interested in what Mr. E. J. Boosey had to say about sweetened rice and milk as a food for his Plum-headed Parrakeet as this corresponds with my own experience in India.

When I was at Karwar, a very lovely place on the west coast of India, I had some young Malabar Parrakeets brought to me which had been fed on the usual diet of parched gram flour, moistened with water. They seemed too far gone to help, but I remembered an article by Dr. Amsler in which he described how he had fed his breeding Swainson's Lorikeets on boiled rice and milk and honey sugar. I, therefore, got Fernandes, our cook, who was very interested in birds, to make me some rice mould sweetened with brown sugar. I do not think the fact that the sugar was brown made any difference. Two of the little things were too far gone to save, but the two stronger ones ate this new food avidly and grew into fine birds. I used this food also for some tiny Hanging Lorikeets and they thrived upon it.

I have often thought the diet of hard grain inadequate for Parrakeets. The Malabar Parrakeet, so far as my experience goes, is a forest lover, and I should think that its diet consists far more of soft wild fruits than hard grain. Incidentally, I think I am the person to whom Mr. Boosey refers in one of his articles, who told him about the breeding of the Grey Parrot in India. It only shows what an unbelieving fellow Mr. Boosey is and what a bad judge of character he was, in this particular case.

BERESFORDS,
BOUGHTON MONCHELSEA,
NR. MAIDSTONE, KENT.

GODFREY DAVIS.

THE COLLARED TURTLE DOVE

MADAM,—May I return to the subject of the letter from Mr. I. J. Ferguson Lees (*antea*, 1952, 58, 194), the Collared Turtle Dove, *Streptopelia decaocto* ?

These are once more being offered for sale in this country.

Meanwhile the spread of the wild species through Europe continues ; it has now bred in Sweden and has reached the Ardennes in Northern France. If any reach Britain it is of the greatest importance that they should be protected from confusion with escaped or released imported birds.

In Germany quite a number of wild Collared Turtle Doves have already been ringed, and two have been recovered (both show that first-year birds can travel long distances) ; so may I suggest that all those who purchase Collared Turtle Doves, whether they intend to keep them at liberty or not, should mark their birds with *coloured*, not aluminium, rings.

JAMES FISHER.

OLD RECTORY, ASHTON, NORTHAMPTON.

THE AVICULTURAL SOCIETY RECEIPTS AND PAYMENTS ACCOUNT

Year ended 31st December, 1952.

[illegible]

I have examined the above Account with the books and vouchers of the Society and certify it to be in accordance therewith. I have verified the Bank Balance.

J. WATKIN RICHARDS, } *Hon. Auditor.*
Certified Accountant.

19th February, 1953.

CANDIDATES FOR ELECTION

- F. BAILEY, 54 Lynwood Grove, Audenshaw, Manchester. Proposed by Miss K. Bonner.
- A. J. CLARKE, F.R.I.C.S., Foxhole Cottage, Llanbedrog, Nr. Pwllheli, S. Caernarvonshire. Proposed by F. E. Thomas.
- M. S. COOMBER, Valenciennes, Burwash, Sussex. Proposed by H. A. Fooks.
- Mrs. F. D. COOPER, Dunstan Lodge, Churchdown, Gloucester. Proposed by Miss K. Bonner.
- J. CORLETT, Rt. 6—Box 647, Mobile, Alabama, U.S.A. Proposed by A. A. Prestwich.
- K. DVORAK, 305 N. Kilbourn Avenue, Chicago 24, Ill., U.S.A. Proposed by D. M. West.
- S. EFROS, 4907 Rodeo Road, Apt. 1, Los Angeles, Calif., U.S.A. Proposed by A. A. Prestwich.
- R. H. GOPSILL, 152 Wyggeston Street, Burton-on-Trent. Proposed by Miss K. Bonner.
- Mrs. D. A. HOBSON, Warren Cottage, Totland Bay, Isle of Wight. Proposed by Miss K. Bonner.
- D. A. HOLTER, 221—31st Street, Manhattan Beach, Calif., U.S.A. Proposed by W. B. Frostick.
- C. M. JASAWALLA, "Hill Crest," 14 Salisbury Park, Poona, India. Proposed by Abde Tyebjee.
- Mrs. M. KERSLEY, Ketleys, Rosemary Lane, Flimwell, Nr. Hawkhurst, Sussex. Proposed by H. A. Fooks.
- D. J. MACPHIE, Hazel Cottage, Petersham, Surrey. Proposed by Miss K. Bonner.
- T. MAUGHAN, 77 Calton Avenue, Dulwich, S.E. 21. Proposed by A. A. Prestwich.
- L. G. MIDDLETON, Stack House, Old Green Lane, Garstang, Lancs. Proposed by Miss K. Bonner.
- J. P. McHALE, 1526 W. Highland Avenue, Chicago 26, Ill., U.S.A. Proposed by A. A. Prestwich.
- E. T. PALMER, 4595 Picton Street, Vancouver 16, B.C., Canada. Proposed by Miss E. Lemon.
- E. RICHARDS, 5 West Lane, Pengelly, Delabole, N. Cornwall. Proposed by A. A. Prestwich.
- J. F. SIMÕES, 5 Largo Cone Barão, Lisboa, Portugal. Proposed by A. A. Prestwich.
- T. STEWART, 33 Jeffrey Avenue, Parkfields, Wolverhampton, Staffs. Proposed by Miss K. Bonner.
- M. B. STONE, Jr., Martin's Pond Road, Groton, Mass., U.S.A. Proposed by Dr. S. Dillon Ripley.
- W. WHISTON, "Lothersdale," Far Heath, Winterley, Sandbach, Cheshire. Proposed by Miss K. Bonner.
- Mrs. E. WICKS, Silver Springs, Beaufort Road, St. Leonards-on-Sea, Sussex. Proposed by H. A. Fooks.
- J. B. ZABALDANO, 15702 E. Nelson Avenue, Puente, Calif., U.S.A. Proposed by Paul E. Schneider.

NEW MEMBERS

The thirty-nine Candidates for Election, proposed in the January–February, 1953, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

READMITTED

I. TAGER, P.O. Box 40, Parys, O.F.S., South Africa.

CHANGES OF ADDRESS

- R. A. TAYLOR, to 182 Lambeth Walk, London, S.E. 11.
- T. F. M. WILLIAMSON, to Benvenuto Avenue, Brentwood Bay, B.C., Canada.

DONATIONS

	£	s.	d.
A. LAMB	2	2	0
G. BEEVER	1	0	0
Captain C. SCOTT-HOPKINS	1	0	0

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

FOR SALE

AVICULTURAL MAGAZINE.—1928–1949, bound ; 1950–1952, in parts. In perfect condition.—Offers to Miss M. H. KNOBEL-HARMAN, 19 Connaught Square, London, W. 2.

1952 Swinhoe Pheasants, £12 10s. pair ; pure Golden, Amherst, and Swinhoe eggs for sale in season.—D. A. MARSHALL, 21 Wilson Avenue, Troon, Ayrshire.

First-cross Silkie Bantams, ideal foster-mothers, pullets and setting eggs.—Major W. H. PAYN, Hartest Place, Bury St. Edmunds.

WANTED

Hen Stanley Parrakeet.—Particulars to V. GULLIVER, Vale Road, Aylesbury.

Bahama Pintail drake, Gadwall duck.—Major W. H. PAYN, Hartest Place, Bury St. Edmunds.

AUSTRALIAN PARROTS IN CAPTIVITY

A series of articles by Alan Lendon published in the Avicultural Magazine. A full account of 60 species of Australian Parrots is included in the book which deals where possible with the author's personal experiences in keeping them in captivity in South Australia.

There are one coloured and seven photographic plates. Stiff paper cover. Price 7s. 10d., post free. Published by the Avicultural Society, and obtainable from the Hon. Secretary, 61 Chase Road, Oakwood, London, N. 14.

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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

**Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
Oakwood, London, N. 14.**

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

**Secretary-Treasurer : Ivo Lazzeroni, 5034 Templeton Street, Los Angeles 32,
California, U.S.A.**

The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford, England. Telephone : Hertford 2546-9.



D. M. HENRY

SCARLET-TUFTED MALACHITE SUNBIRD.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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MAY-JUNE, 1953

THE SCARLET-TUFTED MALACHITE SUNBIRD

(*Nectarinia j. johnstoni*)

By JOHN YEALLAND (London, England)

The Scarlet-tufted Malachite Sunbird was first obtained by Sir Harry Johnston on Kilimanjaro in 1884. An account of the species together with a coloured plate of an adult male appear in Sir Frederick J. Jackson's *Birds of Kenya Colony and the Uganda Protectorate*, vol. 3.

Mr. John C. Williams has contributed a valuable paper "*Nectarinia johnstoni* : a Revision of the Species, together with Data on Plumages, Moults and Habits," (*Ibis*, 93 1951, pp. 579-595) in which he demonstrates (in agreement with Sclater) that there are three races : "*N. johnstoni* is therefore separable into *N. j. johnstoni*, a long-winged, long-billed form with green metallic plumage in the males ; *N. j. salvadorii*, a short-winged, short-billed race, also with green metallic plumage, and *N. j. dartmouthi*, a long-winged, short-billed race with bluish-green metallic plumage in the males and dark brown females."

N. j. johnstoni is most common on the alpine moorlands of Mount Kenya from about 11,000-14,000 feet on the western side and from 10,000 to 10,500 feet on the eastern slopes—wherever the Giant Lobelia (*Lobelia keniensis*) is in bloom.

Of the diet, Mr. Williams says, "The main food of the typical race is Diptera, small flies forming the bulk (ca. 85 %) of the contents of the 28 stomachs examined. Also included in the stomach contents, in order of frequency, are the following : minute Coleoptera ; spiders ; unidentified insect (?) fragments ; yellow vegetable matter (?) ; pollen (once recorded). Nectar was almost certainly present, but was difficult to detect."

Of the roosting habits he says, "On several occasions old birds were observed to retire to roost in deep holes, excavated originally by the

Mountain Chat (*Pinarochroa sordida*) in the matted dead leaf clusters of the Tree Groundsel (*Senecio keniodendron*). These holes, which must give much protection to this sunbird during the bitterly cold nights, are sometimes, perhaps as a rule, used communally, as on one occasion two females and a male were seen to enter a cavity within a few minutes of one another. Immature birds were seen to enter disused nests for resting and warmth."

It appears that the normal clutch is one egg only. There is an eclipse plumage in *N. j. johnstoni* and *N. j. salvadorii*, but it appears doubtful whether this occurs in *N. j. dartmouthi*.

Some of the *N. j. johnstoni* (which is new to aviculture) were collected on Mount Kenya by Mr. R. Bloom, and those kept at the London Zoo have been thriving on the usual Sunbird food together with house flies. One male which has spent the past winter in an outdoor aviary (with a heated shelter) was often outside and singing in quite cold weather.

* * *

NOTES ON THE TRIP TO COLLECT THE SCARLET-TUFTED MALACHITE SUNBIRD (*NECTARINIA JOHNSTONI JOHNSTONI*) FROM MOUNT KENYA

By REGINALD T. BLOOM (Ludham, Norfolk, England)

The idea of catching the Sunbird, *Nectarinia johnstoni johnstoni*, first came into being when talking with Lord Chaplin one evening. As a result of modern travel the comfort of an English fireside was soon exchanged for the lower slopes of Mount Kenya, on whose high moorlands this bird makes its home, and my small mule safari was moving ahead of me, following one of the many game trails which lead upwards into the dim shadowy depths of the Giant Cedar forest.

Thousands of Parrakeets screeched high in the trees overhead; a Hartlaub's Touracou was flushed off a low branch, showing its crimson wings; Hornbills hooted in the higher branches, whilst dragonflies and butterflies hovered over the thick beds of nettles. It was an eerie journey, the Podo trees creaked and groaned and the breeze rustled through the high branches, admitting rays of sunlight which formed strange moving patterns on the green below.

Gradually the way became steeper, ridges and deep valleys formed, some with little streams running down them, but the game tracks followed the ridges closely, making a track for us. Although there were

many signs of game, five elephants were the only big game we saw. Soon the larger trees thinned and small glades bathed in sunlight were a warm and cheerful change from the darkness, and a suitable place suggested rest and food before entering the thick bamboo forest which would engulf the remainder of the trail.

The bamboo forest commenced at about 9,000 feet and seemed to swallow us and shut its mouth behind us, so sudden was the change. It was darker and colder, with a damp, penetrating cold which chills to the bones, and because of the stillness it was at times almost frightening. It seemed as if the ground had sprouted a whole forest of organ pipes which, draped in soft green lichen, rose about 40 feet, to interlace grotesquely and form a series of arches resembling some vast witches' kitchen. These trees were placed so thickly that game trails formed the only means of passage, and even then a way often had to be cleared before the mules could pass. Their bulky loads suffered hard treatment, and when they became entangled with the bamboo it snapped with a sound like a shot which would echo through the forest.

It was a long four hours before the highest edge was finally reached but, as suddenly as it had begun, this dense forest ended, the silence and the darkness were behind, and they were replaced by the evening sunlight and bird-song. The altitude was now about 10,000 feet and the ground became more level, the country resembling an English woodland scene with large oak-like trees draped with creepers. There were bushes of feathery bamboos and clumps of brightly flowering salvia (*Leonotis*) on which hundreds of Goldenwings, Bronzy, and Malachite Sunbirds were feeding.

These birds were fighting and squabbling, and there was a continual noise of angry chattering. Their nests were hanging like large cocoons both from the young bamboos and from the *Leonotis*, which grew to a height of about 15 feet.

Now it was possible to look down over the green forest belt to the golden plains below, rising and falling in broad undulating curves until they joined the Aberdare Mountains, 50 miles away. The tent was pitched snugly in an elbow of the forest before the sun sank behind the near-by hills. As supper was cooked in the embers raked from an enormous log fire the frost fell and the wind blew bitterly cold, so that one froze on one side and roasted on the other. In the morning the small tent was frozen like a board and the trees and ground were covered with a thick hoar frost which crunched underfoot.

The camp was kept in the shelter of the forest edge, which ended abruptly and gave way to open moorland. This moorland continued from about 11,000 feet until it reached the snows at 15,000 feet, and it was crossed by rugged ridges and steep, stony valleys, leading upwards towards the massive glaciers and snowy peaks. The snow gleamed brightly in the morning sunlight which, creeping over the mountain's

northern shoulder, lit the high ground in the plains below, until eventually all was flooded with a soft golden light.

The tops of the ridges were covered in tree heather, *Protea* bushes, and hundreds of brightly coloured flowers. On a *Protea* bloom the first *Nectarinia johnstoni* was seen. It was a cock in full breeding plumage ; its metallic green glistened, while its long, ribbon-like tail waved in the breeze. It appeared to be less fidgety than other Sunbirds, feeding quite unconcernedly, digging its bill into the petals of the flower in search of the minute green beetles found on this plant, and occasionally whistling to its mate. These birds showed a fondness for bathing and could often be seen washing themselves as the top of the ice began to melt from the puddles, or even breaking the ice on water which had collected in the lobelia leaves so as to splash in that.

Suddenly a hen flew off a small egg-shaped nest built in the fork of a near-by heather bush about 4 feet from the ground. The nest was entered through a small hole in the end, the hole was facing away from the prevailing northerly wind, and investigation proved that it was lined with the furry down of the *Protea* seed pod.

During the next few days twenty nests were found, of which one contained a single egg, seventeen a single chick, and two were empty. All the nests were built in sheltered places, usually in heather bushes, but there was no attempt to camouflage or conceal them. The single egg was pink in colour and covered with dull red spots, these spots being grouped more thickly at the broader end ; in size the egg was similar to that of a sparrow.

Each pair of *Nectarinia johnstoni* appeared to have their own territory ; this seemed to extend for about 200 square yards, and the birds defended it vigorously. Should a territory be invaded by another cock a terrific fight ensued, the two chasing each other at a truly amazing speed, at times flying straight upwards until completely out of sight. After this had happened the victor would glide slowly back, his breast puffed out and his tail trailing high behind.

Both cock and hen fed the chick, which left the nest as soon as it was able and fluttered from flower to flower, squatting from time to time with its wings drooped and quivering.

On the higher moorlands, where the giant lobelia and giant groundsel grew to a height of approximately 9 feet and resembled fields of gigantic brussel sprout stalks, the birds were found in large numbers, even as high as the permanent snows. The sunshine at this height was quite warm, but as soon as the sun was covered by cloud it became bitterly cold. These moorlands resemble those of Cumberland, having the same windswept bleakness, and they are often blanketed in heavy cloud, so that at times all is grey and dull. When the clouds pass over, brilliant sunlight lights up the flowers and bushes, and the snow of the mountain peaks gleams white against a deep blue sky.

The Kenya Malachite was the only other Sunbird seen on the moorland and it was quite easily distinguished because of its lighter colour and its more slender body. It was never allowed to stay for very long, being immediately chased off by the *Nectarinia johnstoni*.

It was noticed that the birds left the higher moorland near the snows in the later afternoon and were seen in quantities on the lower slopes just above the forest about four o'clock, whereas during the day only the pairs were seen here. A number of fights seemed to take place on the arrival of these daily migrations to the lower slopes.

Once captured, these birds could be examined more closely, but a detailed description of them has already been published by John G. Williams (*Ibis*, 93, 1951). They were found to accept captivity readily, and in three days would take food from the hand. The return journey was so arranged that the bird boxes were carried by hand and not by mule. Frequent stops had to be made so as to rest and feed the birds. After a short stay at the base camp the birds commenced their air journey to London, where all arrived safely.

* * *

THE UNEXPECTED

By THE DUKE OF BEDFORD (Woburn, Beds, England)

Psychological abnormalities in birds which involve a profound departure from the usual instincts of their species are always interesting. This year for the first time I have had a case of two hen Budgerigars not only sharing the same mate, which is fairly common, but also the same nest box, which is much less so. As a rule a hen Budgerigar is violently jealous of another hen approaching her nest, and any friendship which two hens may have formed prior to matrimony rapidly dissolves when the boxes are put in. When the nests went into an aviary containing about nine pairs of homers, lively, though not dangerous, squabbles were for a time the order of the day. To my surprise, however, I noticed that in the midst of the turmoil of female conflict a white-blue and a cobalt hen were remaining the best of friends, rubbing noses and examining two adjacent boxes with the most complete good will. The cobalt gave way at times to the white-blue, but there was always civility on both sides. Any other hen, however, who approached their boxes was promptly attacked by one or both of the friends. That it was not a simple case of two birds of the same sex achieving a "pair formation" relationship was, however, shown by the fact that both hens accepted a yellow cock as their mate, and were as friendly towards him as towards each other. For a time I thought that the cobalt

and the white-blue, in spite of their friendship, would end by each taking one of the two boxes to which they had staked out a claim, but suddenly they decided they could not be parted; allowed a weaker hen to take possession of one of their boxes; and laid and incubated side by side in the other one. The yellow cock obviously enjoys having two wives, but if they present him with twelve children he will learn that after supper comes the bill!

While this odd domestic problem was developing inside the aviary a different one was being staged on a pond outside. Two full-winged Carolina drakes had for many months enjoyed a bachelor friendship which they found completely satisfying. In March, however, two spinster ducks arrived on the scene and strove earnestly to persuade the drakes to modify their views on matrimony. As far as I can make out, they are not making much headway. Though not actively hostile, the gentlemen are not a bit interested. They are perfectly content to remain as they are, thank you!

* * *

COMPARATIVE STUDIES ON THE BEHAVIOUR OF ANATINÆ

By Dr. KONRAD LORENZ (Dulmen in Westfalen, Germany)

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(*Festschrift Oskar Heinroth*)

Translated by Dr. C. H. D. Clarke, Division of Fish and Wildlife, Ontario, Canada

(*Continued from p. 34*)

XX. THE MANDARIN DUCK

Aix galericulata (L)

A. GENERAL.

Doubtless this form is very close to *Lampronessa*, but it is not so close as one might think at first. Still, the separation of the two genera *Aix* and *Lampronessa* seems to me to be inconsistent with classifying together such different birds as the Mallard and the Wigeon in the genus *Anas*.

B. THE NON-SEXUAL REACTIONS AND CALLS.

These correspond in general to those of the Carolina Duck. The drake's call-note, however, is not separated from the burp as in the drake Carolina. A very nasal "Pfrrriub" takes the place of both calls. When this sound is uttered the hood is ruffled to its greatest extent (Fig. 50). The go-away and nest-hunting call of the duck is very like that of the Carolina, but the drake has, in contrast to the drake Carolina, no corresponding call, at least not so far as I know.

C. THE SEXUAL REACTIONS AND NOTES OF THE FEMALE.

1. *Inciting.*

This corresponds exactly to that of *Lampronessa*.

2. *The Coquette Call.*

This is louder and sharper than that of the Carolina, a sharp "Kett".

3. *The Flight Call.*

This constitutes an admitted gap in my observations. I am ashamed to say that I do not remember anything about it, neither did I make any notes in my diary on the subject.

4. *The Prelude to Mating.*

This is like that of *Lampronessa*.

D. THE SEXUAL REACTIONS AND NOTES OF THE DRAKE.

1. *The General Form of the Display.*

The Mandarin drake takes less interest in the presence of the female at the performance of his display than any of the *Anatidæ* that I know. Even more than with the Mallard the social display is an affair of the males. The males place themselves on show quite passively without being the least bit concerned about the presence of females, almost like Blackcocks, Ruffs, and other birds lacking true pair-formation. Correspondingly, in the social play of *Aix* those orientation-reactions in which other drakes, even the Mallard, give attention to the ducks which are present, are lacking, namely the turning of the head and of the back of the head. Only in the mock-preening is the drake oriented toward the duck, but this behaviour occurs very seldom in the social display. In the social play proper, the Mandarin drakes do not court one particular female, just as Peacocks, Turkey Gobblers, Black Game, or Ruffs never do. It is also surely no coincidence that this very species, where the active role in choosing a mate falls so entirely to the female, is at the same time the one with the most highly differentiated showy male plumage.

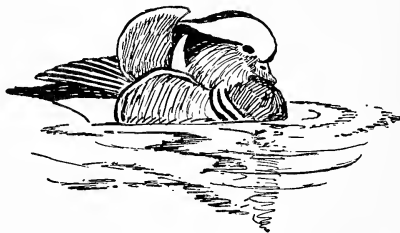


FIG. 48.—The position taken by the Mandarin drake, *Aix galericulata*, at the beginning of the social-play. Compare with Figs. 9 and 19.

which other drakes, even the Mallard, give attention to the ducks which are present, are lacking, namely the turning of the head and of the back of the head. Only in the mock-preening is the drake oriented toward the duck, but this behaviour occurs very seldom in the social display. In the social play proper, the Mandarin drakes do not court one particular female, just as Peacocks, Turkey Gobblers, Black Game, or Ruffs never do. It is also surely no coincidence that this very species, where the active role in choosing a mate falls so entirely to the female, is at the same time the one with the most highly differentiated showy male plumage.

2. *The Introductory Shaking.*

This plays a very small role. On the other hand, in the drake Mandarin the position from which it takes place in all *Anatidæ* which

have this behaviour, is carried to the extreme. The drawing in of the head, ruffling of the head plumage, etc., is more pronounced than in all other *Anatinae* (Fig. 48).

3. *Drinking and Mock-Preening.*

These have become, in *Aix*, an absolutely linked behaviour-sequence but in the reverse order in which we saw them in the Gadwall. After an exaggerated drinking there follows a mock-preening (Fig. 49*a-c*) which is more formalized and marked by stronger morphological differentiation than is the case in any other duck. That is to say,

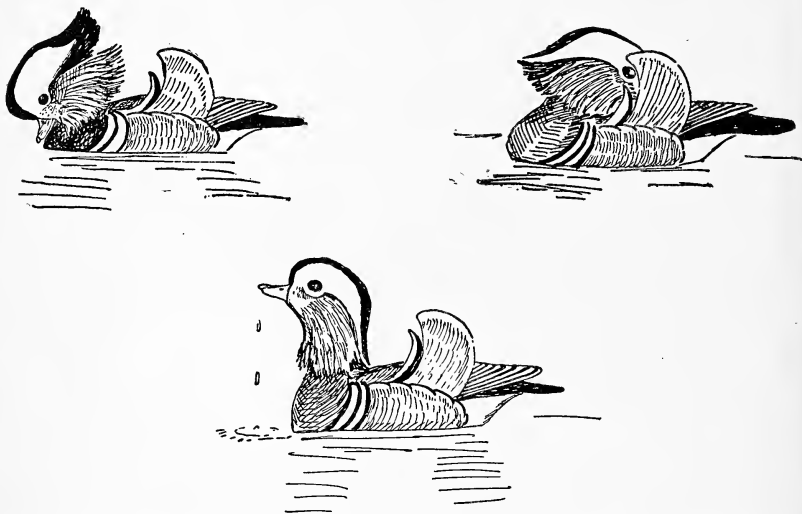


FIG. 49*a, b, c*.—The Mandarin drake drinking, linked with the mock-preening. Notice how the dark green posterior portion of the hood springs up, making the movement mimic-exaggerated. Compare the position of the plumage with Fig. 50.

the Mandarin drake touches the large rust-red tertiaries which are held up like a sail during every outburst of display from the inner side. The drake performs the drinking-and-mock-preening act very often when he is standing on the shore beside his duck. Then both mates drink at the same time, and thereupon the drake touches his beautiful plume, invariably the one on the side next to the duck. As he drinks his hood moves so that the movement is emphasized thereby (Fig. 49).

4. *Burping.*

This is most striking because of the great size of the lifted hood and beard feathers (Fig. 50). The striking feather ball, which is held up so jerkily, looks actually heavy. Simultaneously the drake utters a nasal "Pfrrruieh", exactly at the moment of the maximum tension of the bone-drum. The extreme stretching and arching of the neck, together

with the corresponding movements of the plumage, result in a most grotesque spectacle. It looks almost as if the bird must put his neck out of joint.

5. *Display-Shaking.*

The Mandarin drake has no real grunt-whistle but he displays not less than three different behaviour patterns which have come from mimic-exaggeration of shaking. The first reminds one of the male *Tadorna's* display-shaking. First the head is lowered and then thrust up very high, while a whirring sound is uttered. We can symbolize the sound by these letters: "Fwwwwwwwww." One should try to pronounce the "w" and the "r" at the same time. It is voiced with this head movement. The hood is very much ruffled.

6. *The Double-Grunt-Whistle.*

This is a behaviour sequence peculiar to the Mandarin drake. It consists of two separate movements both derived from a displacement shaking. After an ordinary introductory shaking, often even without it, the drake dips his bill into the water about 5 cm. from his breast, shaking and squirting and then, continuing to shake, he thrusts it up again. This behaviour differs from an ordinary very hard shaking, such as we have seen in the females of *Aix* and *Lampronessa*, only by the movement being so exaggerated that the bill is actually dipped into the water in a way recalling the grunt-whistle of the *Anatina* and never occurring in the case of autochthonous shaking. Besides this, in this movement the drake utters a sound which I have designated in my diary as "Gnk-zit", which expresses its similarity with a half-repressed sneeze fairly well. Immediately after this action and always linked to it, there now follows a second, which by its greater differentiation is still farther separated from shaking. With a sharp bend of the head, the bill is lowered vertically so that it dips into the water right in front of the drake's breast. The tendency to lower the head, which we have seen in the ordinary shaking of *Aix* and *Lampronessa*, is here mimic-exaggerated much more than in the previous movement. With a very brief shaking, the very curved neck is now thrust upwards, with which a short sneezing whistle is heard. I suspect that as a matter of fact only one right-left movement takes place, as in the true grunt-whistle of the Mallard and Pintail drakes. The body is not straightened

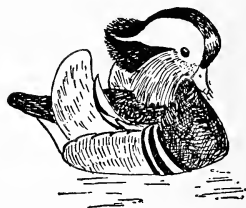


FIG. 50.—The Mandarin drake's burp. Compare Figs. 20, 24, 39, and 46.

up afterwards. One can say that of these two linked shaking ceremonies the first is barely differentiated from the ordinary introductory substitute-shaking. The second is more differentiated but it has remained, so to speak, half-way to the grunt-whistle. Therefore, both are clearly intermediate forms between a displacement shaking almost unaltered so far as the autochthonous shaking is concerned, and the grunt-whistle of the *Anatina*. Thus the derivation of the grunt-whistle from the shaking behaviour is made almost certain by the two connecting links formed by the movements of the Mandarin drake's "double grunt-whistle".

7. *The Combat of the Drakes.*

This forms a very interesting chapter in the ethology of *Aix*. Like the males of many birds that have an extreme social display and extremely fine plumage, the drakes do not fight seriously. The shooting along beside each other, which is so distinctive of the combat behaviour of the drake Carolina and already tends with this species towards ritualization, exists in *Aix* only as a much more purely "symbolic" activity. As such, however, it plays an important role in social play. Heinroth is right in comparing this behaviour pattern of the drakes, as they shoot wildly around each other in this ceremony, with that of a crowd of whirligigs (*Gyrinus*).

8. *The Post-Coital Play.*

This consists only of non-specific gestures of excitement, among which burping, display-shaking, and aiming movements of the head can be named.

SUMMARY

If one wants to formulate a classification of a group with any real success one must rid oneself once and for all of the idea that a linear arrangement of the forms can really represent the relationship existing between them. Naturally, this is true, too, when we spoke previously of the ducks "about in a line". All animals living to-day are growing branch tips of a "family tree", and can, *ipso facto*, not be derived from "one another". The comparison of their characteristics results, therefore, in an arrangement which can be represented freely by the likeness of a family tree with branch tips like those of a small round-clipped beech or yew tree. They lie all together in one surface, which represents a cross-section through a bush growing outwards at one point *in time*. Just as we can only tell by guessing and judging appearances, because of the thick foliage of the tree which we cannot see through, as to which ends belong to a common branch and how far down they branch from the main stem, so the best systematic arrangement can only give us reasonable speculations about true evolutionary relationships.

I am now going to try to represent graphically, in a tabular diagram, what we have gained through that kind of systematic intuition which I tried to describe in the Introduction as a simultaneous review of as many characters as possible. Only by evaluating all accessible characters simultaneously can we achieve a proper judgment as to the relative value of individual characters. First of all we must make a brief deliberation of a fundamental nature. The similarity of a series of forms, even if the series structure arises ever so clearly from a separation according to characters, must not be considered as establishing a series of development stages. Let one imagine that, out of one common root, a number of forms have grown out, all equally old

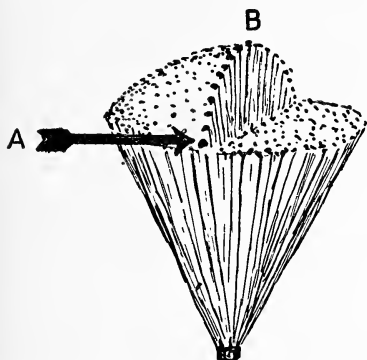


FIG. 51.—Diagram of a series of similarities in recent animal forms whose neighbouring members are not joined by close genetic relationship. When part of the lines of descent fall out, the rest of the forms, lying in the row A-B, can be mistaken for phylogenetic series.

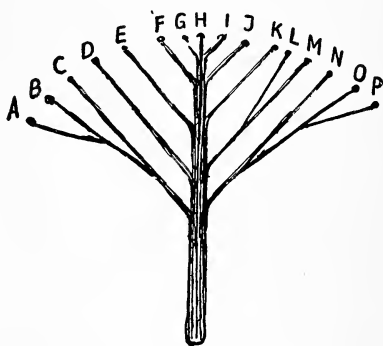


FIG. 52.—Diagram of a series of similarities of recent animal forms, resting on true phylogenetic relationship. Every two neighbouring forms in the row A-B owe their similarities to the part of the path of development that is common to them.

and equally differentiated from the root. We shall represent this family tree structure in Fig. 51 as a kind of shaving brush. Now let us imagine further that, as represented in one half of the brush, part of the hairs have fallen out in such a manner that the rest remain somewhat in the form of a fan. The tips then represent a step ladder leading from A to B, which would seem convincing evidence that the forms have descended "from one another", especially if the degree of differentiation is less on one edge of the fan than on the other. Doubtless the endpoints of such a "family tree" have already often been taken for phylogenetical series, which unfortunately, places ever more welcome weapons in the hands of the opponents of the theory of descent. On the other hand, we must not fall into the opposite error to this too ready formation of series and generalize in the view, that all similarity of recent organisms might be explained from the principle of

fan-shaped classified lines of descent, as an over-generalization of Kleinschmidt's theory would imply. Doubtless there are very many cases in which not only a monophyletic development of large groups of animals has taken place, with many individual forms not splitting off till later, but also the further differentiation of the single forms, at least in respect to single characters, took place at such different rates that similarity lines arose as represented in the diagram in Fig. 52. However in observing these similarities which correspond to a phylogenetical staircase *one must not forget for an instant that the term "primitive" may be used only for one or several characteristics of a recent animal form, never for the form as a whole.* Even *Sphenodon*, or *Ornithorhynchus*, is not a "primitive animal". The circumstance that some or even very many characteristics of such a form are quite certainly phylogenetically primitive, does not justify us in the presumption that all the rest of their characteristics are also primitive. The stopping of further differentiation of one character means nothing in respect to the course of differentiation of the others.

The "intuitive feeling" of the professional systematist, which we discussed in the Introduction, is generally well enough developed to decide between similarity series which rest upon a common descent, as has just been described, and such as arise through the previously discussed phenomenon of classified descent-lines arranged in a fan shape. In order to have a more objective criterion for this separation I suggest the following consideration of probability. If one grants that all the representatives of an animal group come from one source, independent and diverging, without nearer connections with each other, as represented in Fig. 51, then one would expect that the similarities of characters which determine the arrangement as to which lines of descent were to be placed side by side, would be divided rather equally over the whole brush. If, for the sake of simplifying the graphical representation we take a longitudinal section of the brush, getting thus a number of fan-shaped, diverging lines of descent, the similarities which bind each form to its systematic neighbour, would have to go through the whole sheaf of lines homogeneously, and especially from every point to both sides, hence, in the three dimensional sheaf diagram, to all sides; binding species with species in like manner.

This type of distribution of characters actually occurs: in all so-called "circles of forms" (Formenkreise) this holds true and Kleinschmidt's theory of family-bushes (instead of family trees) is indubitably correct if applied to these cases. A Formenkreis is nothing else than a "shaving brush" in which the middle part has worn away, leaving a circle of hairs, representing the single forms.

Now if one represents characters held in common as cross connections and arranges the more general, older characters and those

common to the larger divisions of the group toward the base and the others more and more towards the periphery in proportion to the narrowness of their distribution and their degree of specialization and, consequently, their phylogenetic youth, there would be, in the ideal case of the diverging sheaf-like type of species-formation, a classification such as is represented in the diagram in Fig. 53.

Now we shall try to represent graphically, in the manner described, the group *Anatinæ*, using as many of their systematically useful characters as possible, in order thus to form an opinion as to how far their representatives can be put together in groups according to true phylogenetic relationship, and to what extent the evolution of their

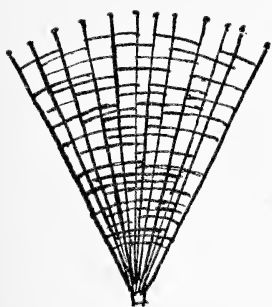


FIG. 53.—Diagram of the division of characters one would expect in unbranched lines of descent, diverging in sheaf-like form. As the variabilities and similarities are explained only by greater or lesser divergence, the distribution of most characters overlaps.

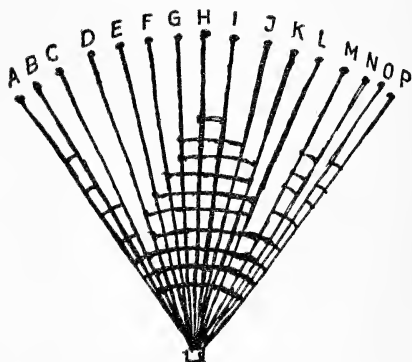


FIG. 54.—Diagram of the distribution of characters which is to be expected when lines of descent branch in the form of a tree. As the connecting characteristics are results of common paths of development, they are divided according to their common descent and do not intersect except for convergences.

species corresponds to the type of the sheaf-form diagram with diverging straight lines in Fig. 51. Although the sheaf of the lines of descent can be symbolized only in three dimensions we shall have to use several flat projections. He who is very particular about clarity may draw them thus and then glue them together so that they fit. I confess that I myself used, for the arrangement of the species, a bundle of stiff wires with thin wires representing "common characters" joining them together into sub-groups.

If one grants that not every species of a group of forms has developed quite by itself, independently from all others, a very different distribution of characters is to be expected. If several forms have only branched from one common ancestor after a long period, we can expect that they have in common such characters as have evolved during that time and that they differ in such characters as each

of them has developed since the time of its branching-off. If two branches grew away from each other very far down we are not surprised if they are connected only by very old characters common to larger group categories. Cross-connections in character distribution, as we have represented in Fig. 53, are not to be expected if, for the time being, we ignore the possibility of convergence. Fig. 54 shows the type of character distribution which is to be expected in a family tree as opposed to the family "bush" represented in Fig. 53.

In species where there is reason to believe that the lack of a character is not primitive but of secondary occurrence, this has been shown by a little cross at the intersection of the character connection and the line of descent. As is clear from the Table, the placing together into groups of common origin becomes more probable the nearer we move to the base of the sheaf of lines of descent, while for very many characteristics of more recent date clear cross-connections in the distribution of characters after the manner of Fig. 53 have yet to be found. Notice, for example, the distribution of the grunt-whistle, head-up-tail-up, and turning-of-the-back-of-the-head.

The few morphological characters, interspersed in the Table, are to show how similar their distribution is, in many cases, to that of behaviour traits. After filling in those gaps, which are especially obvious in the list of species investigated, I plan to construct a much larger diagram, built upon the same principle, in which will be entered all or nearly all the available morphological and behaviour characters, such as the fertility of hybrids. The publication of this Table must above all await the result of comparative studies of the drake's bone-drum, which is so very rich in characters that can be compared. Heinroth has left some unpublished material on this subject, as well as a very complete collection of bone drums.

Even in its preliminary incomplete state our grouping shows clearly the possibility of using the phylogenetic homology concept for characters of inherited behaviour. This fact, which it has been the principal task of my investigation to prove, is of the very greatest significance in comparative psychology.

EDITOR'S NOTE.—Dr. Konrad Lorenz has made a number of alterations and additions to the translation in view of his subsequent work on this subject since the publication of the original German text. The Table which concludes the paper has been re-drawn.

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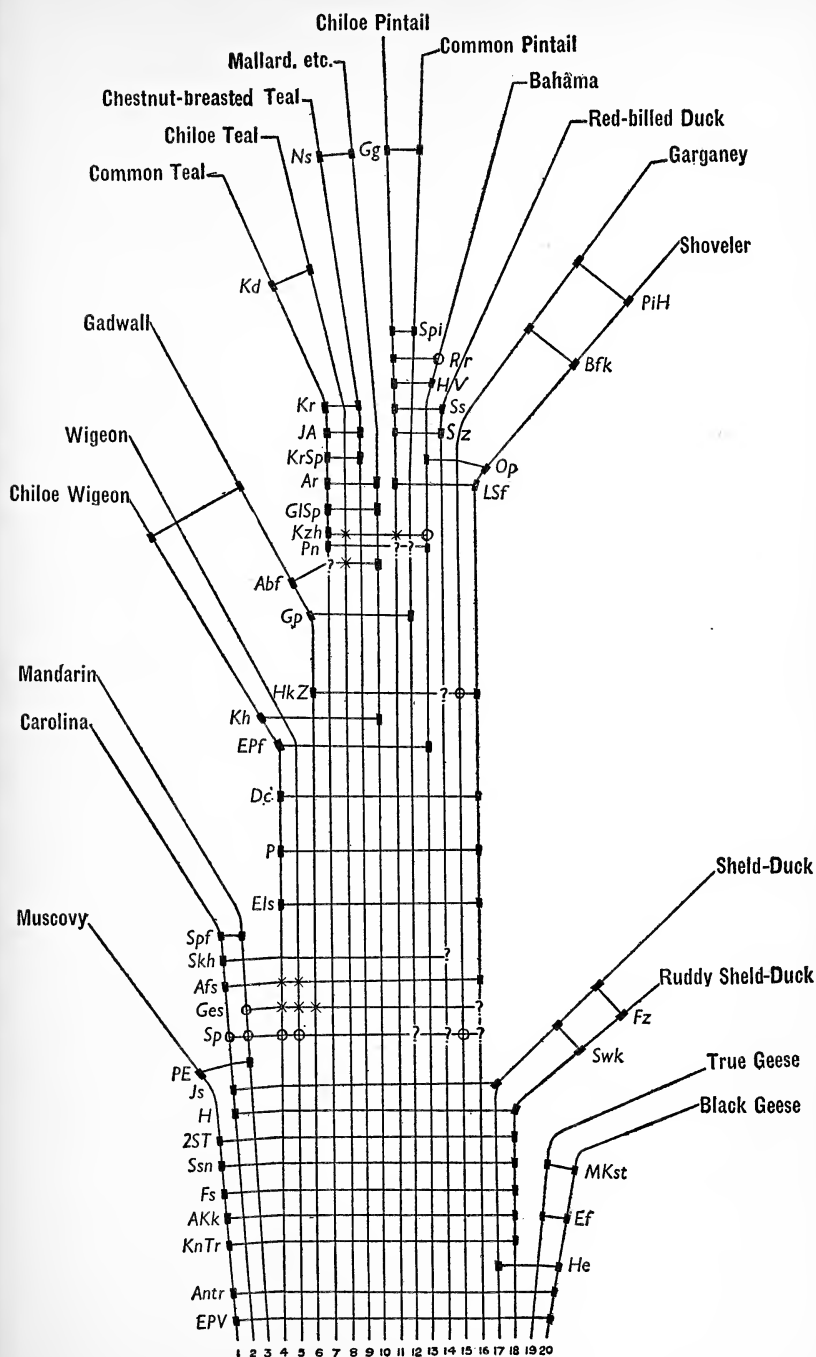
The blocks of the illustrations have kindly been loaned by Professor Dr. Erwin Stresemann, editor of *Journal für Ornithologie*.

EXPLANATION OF DIAGRAM

The vertical lines represent species, the horizontal ones characters which are common to these species. A cross indicates that the character in question is lacking in that particular species. A circle indicates an exceptional differentiation of a character in a species, a question mark ignorance of the author.

List of Species.—1 Muscovy Duck, *Cairina moschata*. 2 Carolina Duck, *Lampronessa sponsa*. 3 Mandarin Duck, *Aix galericulata*. 4 Chiloe Wigeon, *Mareca sibilatrix*. 5 Wigeon, *Mareca penelope*. 6 Gadwall, *Chaulelasmus streperus*. 7 Teal, *Nettion crecca*. 8 Chiloe Teal, *Nettion flavirostre*. 9 Chestnut-breasted Teal, *Virago castanea*. 10 The Genus *Anas*, Mallard, Spotbilled Duck, Meller's Duck, etc. 11 Chiloe Pintail, *Dafila spinicauda*. 12 Pintail, *Dafila acuta*. 13 Bahama Duck, *Poecilonetta bahamensis*. 14 Red-billed Duck, *Poecilonetta* (?) *erythrorhyncha*. 15. Garganey, *Querquedula querquedula*. 16 Shoveler. *Spatula clypeata*. 17 Sheld-Duck, *Tadorna tadorna*. 18 Ruddy Sheld-Duck. 19 Anser as a genus. 20 Branta as a genus.

Compared Characters :—*EPV* : monosyllabic piping of lost chick ; *ANtr* : Displacement drinking as a signal of peace *Kn Tr* : Bone drum in the trachea of male ; *AKk* : Duck-like markings of downy chick ; *Fs* : Glossy speculum on secondaries ; *Ssn* : Bill with lamellae functioning as sieve ; *2 St* : Contact-call of chick consisting of two syllables ; *H* : Inciting ceremony in female bird ; *7s* : Displacement shaking as a form of display ; *PE* : "Aiming" Intention movements of the head in pre-copulatory display ; *Sp* : Displacement preening behind the secondaries in the male ; *Ges* : Social display of drakes ; *Afs* : Burping ; *Skh* : The Duck's inciting movement backwards over the shoulder ; *Spf* : Feather differentiations enhancing the function of displacement preening ; *Els* : Preliminary shake ; *P* : Pumping as pre-copulatory movement ; *Dc* : Decrescendo call of the female ; *EPf* : Whistling in the drake ; *Kh* : Chin lifting ; *Hkz* : Turning the back of the head towards the female ; *Gp* : Grunt whistle ; *Abf* : Down-and-up movement ; *Pn* : post-copulatory display with bridling movement ; *Kzh* : Head-up-tail-up ; *Gl Sp* : Speculum identical in both sexes ; *Ar* : Bridling movement ; *KrSp* : Speculum parti-coloured black and green ; *Trkh* : Chin-lifting in the function of a "Triumph ceremony" ; *IA* : Bridling as an independent movement, not coupled with head-up-tail-up ; *Kr* : Teal Whistle (of two syllables) coupled with burping ; *Kd* : Teal whistle independent of burping ; *Ns* : Nod-swimming in the female ; *Gg* : "Geeee" call of true Pintails ; *SpI* : Elongated middle tail feathers ; *RR* : Rolling Rrrr call of female while inciting ; *HV* : Lifting of anterior part of body while inciting ; *Ss* : Markedly wedge-shaped tail ; *Sz* : Marking of bill with light spots on the side ; *OP* : Drake without a whistle ; *Lsf* : Lancet-like feathers on shoulder of drake ; *Bfk* : Small feather of wing light blue ; *FZ* : Small feathers of wing white, speculum glossy green, elbow feathers ruddy ; *SwK* : Down young marked black and white ; *MkSt* : Contact call of young with many syllables ; *Ef* : Downy young uniformly coloured, without sharp markings ; *He* : Dipping of the neck as pre-copulatory display.



BREEDING SUCCESSES AND FAILURES IN 1952

By H. MURRAY (Brentwood, Essex, England)

From an avicultural point of view, the spring of 1952 opened for me in considerable gloom if not absolute disaster. Indeed, it was not until the autumn that my affairs began to assume a more rosy hue.

Over the years I had noticed that my strain of aviary bred British birds had nested earlier every year, but in 1952 for some reason they began earlier than ever before, and the middle of March saw both Lesser Redpolls and Siskins with nests and the former with eggs. These nests were a good eight weeks before their usual time.

As many people will remember, the end of March was accompanied by a very heavy snowfall which caused the destruction, or brought about the desertion, of many nests of Thrushes and Blackbirds and other early nesting birds. I should imagine that many of the parent birds died as well. It is certainly true that in the area in which I live, a district in which both Thrushes and Blackbirds abound, only two young Thrushes survived from the first round of nests.

In the aviary things were even worse, and all the Lesser Redpolls and Siskins died, both cocks and hens, presumably killed by the cold striking them when they were in breeding condition. By the time I was able to catch them up and bring them in it was too late.

Curiously enough the Bourke's Parrakeets, which are generally regarded as not completely hardy, but which had also gone to nest early, sat closely all through the snow and hatched and reared their young. I am fairly sure that the cock slept out in the open all through that bitter week-end. My old hen Cockatiel also died about this time, and the cock bird was forced to spend the summer as a very unwilling bachelor; but a hen seemed quite unobtainable at that time.

By chance I had obtained a fine hen Orange-headed Ground Thrush, and I thought that I would have a chance to breed these lovely birds, as I already had a good cock bird, but here again my hopes were dashed. The hen by some means best known to herself, wedged herself into a corner of the top of the aviary, and presumably could not get out again, and died there. I brought the cock bird in, but of course another pair of birds had come adrift.

To crown it all, the very night that I released the small birds in the large aviary I had a visit from owls, and lost one or two birds in night flights. Once birds are really familiar with their surroundings owls do not seem to disturb them, but when birds are freshly turned out they are much more prone to panic.

Among the birds injured that night was a very fine cock Yellow-billed Cardinal, one of a pair with which I had great hopes of breeding

this species. He damaged the top of his head, but recovered later, although he made no attempt to breed. I had taken a corner from my large aviary to make a quiet spot for them. Perhaps 1953 will be more fortunate. Before leaving the subject of these Cardinals I would like to mention that these birds have the very un-Cardinal-like habit of hanging upside down on the roof of the aviary in the same manner as tits.

I must confess that by the time the breeding season came round I was strongly inclined to go in for stamp collecting or knitting, or one of the less hazardous pastimes.

About the beginning of May I was in a dealer's shop, endeavouring to make up my pairs of birds, when I noticed an extremely handsome pair of small parakeets of a kind quite unknown to me, and was immediately keen to own them. As they were rather expensive and I had seemed to spend a lot of money recently on birds, I decided not to buy them but, as any aviculturist will realize, I went back a day or so later and bought them. They were White-eared Conures, and, I should say, a true pair.

I thought a lot of these birds, as they were bright and not too noisy. After a few days I turned them into an aviary containing a nest-box, and was soon very pleased to see them enter. The hen started to sit and the cock slept in the box with her. When after six weeks nothing had been seen or heard of the hen I became very bothered about her, but as the cock still slept in the box I thought that things must be going on satisfactorily. Then the cock sickened, and I went in and looked in the box. The hen was dead and had been for weeks, and the cock, probably owing to sleeping with the dead bird, also passed away.

I feel that having given such a long description of my troubles, it is only right to show a little of the other side of the balance sheet.

The Bourke's Parrakeets, as mentioned earlier in this article, had sat throughout the snowfall. They reared three young successfully in the first round and one in the second. These were all reared without any bother. In my opinion the Bourke's Parrakeet is one of the most charming and attractive of the birds known to the aviculturist. The young are so delightfully tame and will allow themselves to be stroked at feeding time. Also I like the way that the cock bird comes to meet you when he has young birds to feed, and the lovely soft colourings he shows as he flies. Their call too is quiet, and in many ways they work their way into one's affections. I have not kept a very large number of parrot-like birds, but one would have to go a long way to beat a Bourke's as a friendly little pet. Unlike other people, I have not found Grass Parrakeets safe with other birds.

In the summer of 1952 I also had considerable success with Guiana Parrotlets. This little parrot carries no blue except on and under

the wing, the general colour being a medium green. This colour varies over the bird and turns it into an attractive little fellow. The hen is more yellow, particularly on the face. In the eyes of these birds, their greatest glory seems to be the blue on the underside of the wing. When displaying the wings are held away from the body and the blue well displayed. It seems to be a fairly general rule with birds that they show off their more unusual colours when courting, even though in many cases these are not so spectacular as their ordinary markings. The display of the white in the wing and tail of a Chaffinch and the white rump of a Bullfinch are two cases in point.

I obtained the parent birds in the summer of 1951 and no attempt at breeding was made in the first season. When first arrived these birds were very wild. During the winter they were kept in a cage in the birdroom and wintered with no bother. Their cage was actually in the large aviary in which the small birds were wintered, and it was a most amusing sight to watch the behaviour of an odd cock Greenfinch that was in the flight. As the spring advanced he came into full breeding condition, and being without a mate of his own kind decided that the hen Parrotlet would have to do as a substitute. He spent hours against the cage trying to feed the Parrotlet with both the cock and hen Parrotlet screaming with rage at him and trying to grip some portion of his anatomy. Like a wise bird he kept his feet outside or his toes would soon have paid forfeit. Mr. Enehjelm keeps his Parrotlets with his Waxbills and other small fry, and even breeds them in his mixed flights, but my birds seemed very warlike, and with their powerful beaks they seem more than a match for any normal finch.

In May the Parrotlets were let out into an aviary about 6 feet by 4 feet, containing a Budgerigar nest-box partially hidden by a branch of gorse, and it was not long before they went to nest. The first egg was laid about the 11th May, and the hen sat very closely. Apparently the cock fed the hen bird on the nest. Young were heard on the 6th June and, as was to be expected, sounded very like young Budgerigars. The hen continued to sit very closely, with the cock feeding his complete family. Indeed, it was not until just before the young flew on the 1st July that I saw the hen again.

The first brood consisted of three cocks and one hen. The young were easily sexed as there is no immature plumage. The colours brighten as the bird gets older.

The young Parrotlets flew on the following dates, indicating a rather long interval between eggs for so small a bird—1st July, 3rd July, 6th July, 9th July. All the young were perfect and differed very little from their parents. As always with a brood of birds that one has succeeded in rearing, the family made a pretty picture. The whole family, both parents and youngsters, slept in a clump under

a piece of wood near the roof. The young birds commenced feeding themselves soon after leaving the nest, and seemed particularly fond of timothy grass thrown on the ground. I have yet to find a seed-eating bird that does not relish this food.

Feeding the birds while the young were in the nest was fairly straightforward. The birds' staple food of a mixture of groats, canary seed, hemp, sunflower, and millet was given with the addition of soaked seed and spinach stalk. The birds were really as easy to rear as Budgerigars. Green food was a bit of a problem at first. The only kind that the cock bird would look at at the beginning was seeding forget-me-not. Later he ate spinach.

The hen Parrotlet started sitting again about a week after the young left the nest, and reared another nest of young ones—two pairs this time. I was very pleased at my success with these birds, as it seems to be some years since they were bred, but as appears to be the case with many parrot-like birds, once the pair decides to nest they usually make a good job of it. The main difficulty seems to be to get a true pair of birds in the right condition and frame of mind.

Hawfinches proved a disappointment again this year. They nested but the hen died with laying her first egg.

Shamas also nested without result. The hen had bad egg-binding every time she laid, and never managed to lay her eggs in the box. The cock sang beautifully all the summer and would very willingly have murdered any bird he could have reached. During the previous winter the hen Shama had been given a large flight and a heated shelter, but I am inclined to think that the trouble with egg-binding may have been caused through her having become cold at times in the winter. It must, however, be said that she showed no signs of distress at all, but was always in the best of health and spirits.

An attempt was made to breed three species of Cardinals—Green, Scarlet, and Yellow-billed, but none advanced further than nest building. The little Pygmy Cardinal or Black-crested Finch which I bred in 1951 would, I think, have bred again, but I only had a hen bird. She nested and laid, but of course the eggs were clear.

Green Avadavats reared two good youngsters.

A cock Cordon-bleu paired with a hen Blue-breasted Waxbill and reared four fine youngsters, three in the first nest and one in the second. After their moult one of the cocks showed a faint touch of red on the ear, but the birds undoubtedly favour the Blue-breast. It is generally believed that a young bird obtains most of his colouring from the cock bird, but in these youngsters the Blue-breast is undoubtedly the dominant bird for colour. Can this mean that the Blue-breast is the parent stock and the Cordon-bleu a later variation?

These young birds were reared mainly on seed, but the parents

also ate considerable numbers of mealworms and black fly. The nests were built in a branch of gorse and were simply a small bag of finely woven grass. The nest was practically unlined, and appeared to be built by the cock. He also took his turn at incubation and feeding the youngsters, and was in fact a model parent.

Black-cheeked Waxbills also nested, and one bird sat very closely although no eggs were laid. The nest was very similar to the Cordon Bleu, and it seemed a pity that they did not rear youngsters as they are such attractive birds. This particular pair have now been wintered three times and it is hoped that in 1953 they will breed.

Live food seems to be essential for Black-cheeks, and soaked seed is also relished, but one of the greatest treats that can be given to any seed-eater in the winter is a seed box planted with annual grass and chickweed and brought into the warm until it has grown up fresh and green. All seed-eaters like this, and it cannot be otherwise than highly beneficial to them. This particular pair of birds was exhibited at the 1952 National Show, and I was very perturbed to see that the hen looked very sick after the three days' show. The birds were immediately released into the indoor aviary after their return, and both flew at once to a pot containing cut up dates, which they ate greedily. I am a great believer in dates for softbills and fruit-eaters generally. Cuban Finches and Diamond Sparrows are very fond of them also. It may be that the Black-cheeked Waxbill needs a sweet fruit of this nature to keep it in condition. My experience with these birds has been similar to the general run; very easy to keep in the summer out of doors, but prone to enteritis and sudden death when brought in for the winter.

Nests were built on the ground within a few feet of one another by both Red-eared Waxbills and St. Helena Waxbills. As the nests were on the edge of a tiny bank near the side of the aviary it was reasonably easy to keep them under observation. It is well known that the St. Helena is one of the more easily bred Waxbills, while the number of successful rearings of Red-ears can be counted on one's fingers.

Why this should be I cannot see, as Red-ears have nested and laid with me every year, but they seem to desert before the eggs hatch. I have always considered that this is due to having more than one pair of the birds together. When one considers the hundreds of thousands of these birds that have been imported and kept under all sorts of conditions over the last century this lack of breeding success becomes even more curious. I was therefore very interested in watching the activities of these birds. The nest was the usual rough ball of woven grass with the entrance at ground level and covered with a tiny porch. The cock built his little half open nest on the top, and the whole edifice was covered by a clump of milk thistle. Several of the large leaves of this plant were either hanging down over the nest or lying on the

ground. It was pretty to watch them go to roost at night. The hen had a special route that she always followed. This track started about two feet from the nest and led through the stems of the milk thistle, reaching the ground about a foot from the nest. She then crawled and wriggled her way under the leaves lying on the ground until she could slip into her nest. The cock did not bother so much about concealment, but flew down to his nest. I was both interested and surprised to see that the cock and hen did not sleep together in the proper nest, the cock keeping to his upstairs bedroom.

The nest of Red-ears went the usual way, but with the St. Helenas things were more satisfactory. Their nest was a few feet from the other one, but appeared to be the same except for the cock's nest on top. As usual with Waxbills, I had no certain knowledge that there were any young, until after about six weeks from first sitting a fine youngster flew. He was a cock with ear patches and a rosy tint on the abdomen. He was a fine large bird. Greatly to my surprise two other youngsters flew at the same time and apparently from the same brood. They were small brown birds with no trace of any red about them. The parent St. Helenas fed all three birds, so presumably they flew together. It was the wide difference in the birds that surprised me—one bird a true St. Helena in full colour, and these two much smaller birds with no red at all. No colours appeared at all until the moult, and then the birds, after appearing to be Red-ears, turned into a sort of cross between a Red-ear and a St. Helena. I still have these birds and shall try and breed with them this year. At the beginning I thought that the Red-ears had laid in the other nest, were in fact partly parasitic. This would account in part for the small number of successful breedings of this species, but I now think that the youngsters were hybrids. I had proof last year that this can happen when from one nest of Linnets I reared two Linnets and two Redpoll-Linnet hybrids. This time I think I have one true St. Helena and two hybrids. Perhaps someone who has bred St. Helenas before may be persuaded to give details of immature plumage. It may be that hen birds do not assume adult colour until the moult, while the cock birds fly from the nest with full colours. I find this hard to believe, but would be pleased to hear more about it.

Black-chinned Yuhinas provided another near miss. I had had these birds for two years and had never considered them a true pair. No sign of any display was ever seen, although the birds were always together and seemed very fond of one another. Even a separation of a few feet was sufficient to make them call constantly. They commenced nesting in early May, and constructed a half-roofed nest in a wire cylinder. Four eggs were laid of a dull brownish-green colour with darker markings. The nest was built with strands of opened string and lined with wool. The birds certainly behaved like a true

pair, and relieved one another regularly at the nest. Also I believe that one bird slept in the shelter. After about a week both birds were seen to be sitting together, and I became convinced that they were both hens. After a time I took the old nest away and both birds built separate nests, but no more eggs were laid. It was a pity that they did not breed, as I understand that they have never been bred in England so far.

Ruficauda Finches started the season badly, but finished a little better. In the spring I had two of these birds that I thought were a true pair, but the "cock" turned out to be a hen, and the two birds then built a joint nest, laid ten eggs between them, and spent some months happily brooding clear eggs. About the beginning of August I learned that Mr. Vane had some spare cock birds, of which I procured two and turned them into the large aviary with the hens, first taking away their old nest. Although the cock birds seemed interested enough in the hens, the two old ladies, doubtless considering that they got along very comfortably without the complications arising from marriage, decided to stick together and built another nest in which they laid seven eggs which they commenced to brood. A cock bird approaching the nest was a signal that brought an amazon forth to drive him away. The male birds looked rather foolish having to sing and display at a safe distance.

I myself took a rather dim view of this ultra-militant feminism, as I naturally thought that all the eggs would be clear, but the birds did not take the matter to extremes, and in due course all seven eggs hatched. Even when the young were in the nest the cock birds were never allowed near them or to feed them. Owing to the very wet weather only two young birds were reared. It may perhaps be as well to mention that I have proved that both of the hens are in fact true hens. Both have been egg-bound !

In conclusion I would like to put on record a very unusual occurrence ; in fact it comes nearer to thought as we understand it than anything else that I have observed myself. The interpretation of the facts will probably differ, but the truth and accuracy of them are absolutely guaranteed.

Many of our members have bred Cuban Finches, indeed these pretty little birds are nearly as easy to breed as Zebra Finches as long as they have an aviary with no other birds of their species with them. The cocks fight furiously among themselves, sometimes to the death, but with other birds they are peaceful and friendly.

As their name implies, they come from a very warm climate ; indeed so little do they bother about the weather that their nest, a small bottle affair usually fixed to the outside of a gorse branch, and not built in its shelter, is so thin that the sky can be seen through the roof and the sitting birds and eggs through the base. As another instance

of their being accustomed to extreme heat, they do not brood the eggs in the same way that a normal bird does, but only return to the nest for about five minutes in the hour. Indeed the only way that one can be sure of eggs, apart from an examination, is to notice that the adult Cubans keep a very close watch on the nest, any other bird going near being immediately driven off.

My pair of Cubans consisted of a cock bird that I had bred the year before and a newly imported hen. No attempt was made to nest until well into August, and it was not until the 31st that I heard the youngsters being fed.

As some of my readers may remember, the week-end of the 6th-7th September was accompanied by a very heavy frost. On the morning of Saturday the 6th I went to the aviary expecting to find the parent birds had deserted the nest and the youngsters dead. This is the usual happening with all birds, both British and foreign, when struck by an unexpected frost. To my surprise when I approached the aviary I found both of the parent Cubans frantically pulling wool out of old nests and carrying it back to their own. This was then taken inside, roughly placed in position by the beak, and the bird then stood under it and placing its shoulders under the wool it stood up on its toes and forced it into position with its back. All Saturday the birds worked furiously, and all Sunday as well. The young were fed at odd times and screamed constantly for food, but the parents paid little attention to them, but carried on with their work. By Sunday evening the nest, which on Friday had been the size of a man's fist, was as large as a football. A great mass of loosely held together wool with the sides about three inches thick. On Monday night it rained and the nest was washed half away from the branch. On Tuesday and Wednesday the young flew, and more rain on Thursday brought the whole nest to the ground. Two out of the three young were reared, and I still have them.

This incident raises several interesting queries. How did these tiny birds, with no possible race memory of frost, know how to react correctly to the danger? Perhaps some of our members have had similar experiences or have noticed the behaviour of these birds in the West Indies. Being in the wool trade I prefer to think that even Cubans can read advertisements, and that they believe "that there is no substitute . . ."

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HYBRID SONNERAT'S JUNGLE FOWL

By DAVID M. JOHNSON (Washington, D.C., U.S.A.)

The article contributed by me about a year ago to the Magazine appears to have aroused great interest, and I have received many letters of inquiry. It gives me great pleasure to share with my fellow members of the Society the results of my further research into this most interesting subject. I have even had a Kodacolour print made of a painting I have done of some of these hybrids.

It would seem that this question of Sonnerat hybrids has not hitherto received the attention it deserves. I have seen a list of at least seven books in which reference has been made to the contribution made by Sonnerat's Jungle Fowl to any breed of domestic poultry and all deny any such contribution or any relationship. One of these books goes so far as to say : "The resemblance between this Grey Jungle Fowl and the domestic is great, and it was believed that this would prove to be the ancestor of the domestic fowl. This is not the case, however ; the two species do not cross, or if they did interbreed, the hybrids of this cross are sterile." I may say that it is not my opinion that the Grey Jungle Fowl resembles the domestic fowl in appearance, and my own researches show that hybrids are not always sterile.

There is another reference in an old British book. Dr. Danforth, of Stanford University, who has done extensive pheasant research in genetics and intergeneric as well as interspecies crosses in pheasants, has kindly sent me his papers and a reference in an old British book to a Grey Jungle Fowl running free with bantams in England, crossing with them, but the offspring were finally absorbed in the bantams. This was in the year 1870.

It seems strange that Man has treated so lightly, even indifferently, a subject which is so related to Game Birds and also to poultry, in its many phases of interest and study.

The records of our Society seem brief and incomplete in this particular subject, and I am happy to be able to contribute my findings. By autumn I hope to report my findings in my research on three-quarter Sonnerat's cockerels and Cornish Indian Game Bantams.

I have referred to a picture I painted of Sonnerat's hybrids, and if it is not possible to publish it in the Magazine perhaps it could be retained in the records of the Society, so that any member who wished to see it could do so. At the time I painted this picture the cockerels were under a year old and the feet and legs were then yellow. But at a year old the feet and legs turned red, as in their sire, the cock *sonneratii*, and while the cock bird superficially resembles the Red Jungle Fowl (*Gallus gallus*), the chest would indicate *sonneratii*, as well as the underglow. The shape of the feathers, too, resembles *sonneratii*, but the comb

takes after the mother's side, the *Gallus gallus*. The hen hybrids are, however, so like the Grey Jungle Fowl hens that it would take an expert to distinguish them. In their voices and calls the hybrids more resemble *sonneratii*, which differs from *Gallus gallus* in this respect. The hybrids do not seem to prefer domestication as do the Red Jungle Fowl.

I will now comment briefly on the three-quarter *Sonneratii* hybrids, with which I propose to deal more thoroughly at a later date.

These birds were the produce of five-month-old cockerel *sonneratii* hybrids and an old hen *sonneratii*. They were hatched in September and the clutch were 100 per cent fertile. They grew up in adverse weather conditions and during a winter of almost continuous rain and frost. Their hardihood was astounding. One three-quarter hybrid pullet refused to be weaned but is nevertheless this year assisting its mother in incubating. She looks exactly like a *sonneratii*. The two brothers, three-quarter *sonneratii*, resemble a Grey Jungle cock in appearance, especially one of them which has almost no comb. I have provided these with a Cornish Game Bantam as mate and they are compatible. I have chosen the Cornish Bantam for two reasons. One reason is they have no superfluous comb and wattles and the other reason is that some experts believe that the Indian Game Fowl itself is something other than *Gallus gallus*, which prompts me to research along these lines. I have found the three-quarter *sonneratii* hybrid to be inherently wild. They seem to think of nothing but eventual escape, even more than the pure wild Grey Jungle Fowl, which will settle down somewhat. These hybrids are highly prolific, producing an abundance of eggs, as in poultry, and the maternal instinct is strong. Egg-laying is not strictly seasonal, as in *sonneratii*, and the cock bird is in season at all times. This is not so in the *sonneratii* cock, at least, as its breeding season is strictly in spring and again in autumn. Its reproductive qualities go into eclipse with the summer moult.

I have been impressed with the apparent potentialities of the hybrids, in their varying degrees, as offering possibilities as a game bird if a suitable habitat can be worked out. This, of course, should be done by a system of trial and error by the younger generation of aviculturists. There seems much promise here for the covert. The food of *sonneratii* and its hybrids should be easily found. It seems to consist more of living creatures, such as insects and worms, and its demands on a grain diet are less than the other species of *Gallus*. Its alertness, virility, and intelligence seem remarkable.

It is to be hoped that others will carry on this work, so that this bird of unlimited energy and virility may be established in parks, estates, and preserves.

HOODED COCK AND MANY-COLOUR HEN HYBRIDS

By PROFESSOR E. SPRAWSON (Kenley, Surrey, England)

I was very much interested in the final paragraph of "News and Views" on page 70 of the March-April issue of the AVICULTURAL MAGAZINE, concerning the breeding of hybrids from Hooded cock and Many-colour hen Parrakeets, and their great likeness to the Paradise Parrakeet.

Though neither a prophet nor the son of a prophet, I have for many years thought that this would be so, and there were several reasons which led me to think so, as follows :—

The areas occupied by the Hooded and Many-colour (illustrated in Neville Cayley's *Australian Parrots*) might well, on occasion, overlap on the western border of Queensland ; and that occupied by the Paradise Parrakeet actually does overlap that of the Many-colour in Southern Queensland, so that opportunity for the occurrence of natural hybridization may be said to be present. (It also seems well within the range of possibility for the Golden-shouldered to overlap and hybridize with the Many-colour.)

The differing nesting sites do not, I think, count for a great deal. I have had Hooded Parrakeets dig a hole and nest in an ant-hill here in Surrey (Mr. Boosey published the photograph), I have also had them nest in the ordinary parrakeet nest-box, such as was used by Many-colours ; and did not Canon Dutton record that his Paradise Parrakeets attempted to burrow into the wall of a room—presumably to nest ?—though he did not say how high above the floor level they burrowed, but only that had they gone in they would have got into a loft—and yet it is also known as the "Ant-hill" Parrakeet. Cayley also records the wild Paradise as occasionally nesting in holes in trees and stumps.

Colour and colour distribution. It is an old saying concerning hybrids—and with some truth in it—that they are "coloured like father and shaped like mother". Shape hardly comes into account here, as both Hooded and Many-colour are very graceful birds and of not dissimilar shape, though the Hooded is rather slimmer. The Paradise, which I have never seen alive, appears to be slim also in the photograph in Cayley's book.

The Hooded father would give the black cap to the hybrid—but lessened in area (as in the Paradise).

The crimson patch on the wing I would expect in such a hybrid ; the Many-colour hen has a small red wing patch and the wing patches of the young males as they leave the nest are considerably redder than are those of adult males—which looks as if the yellow patches of the adult males were a later evolutionary production ; the red wing-

patch in the hybrid might then well be a reversion to an ancestral colour. The coloured wing-patch in the Paradise, too, is in size between those of the Hooded and Many-colour males.

The Hooded father would also give the turquoise blue to the rump and upper tail coverts, and the brown to the back. The red colour of the patch on the cock Many-colour's nape might well be transferred to the frontal band on the forehead of the hybrid (as in the Paradise) ; besides, the frontal band in the hen Many-colour is often reddish, and that, too, might influence the production of a red frontal band in the hybrid.

To my mind, some other hybrids which were bred some years ago by Mr. Boosey : Red Rump \times Hooded, and Brown's \times Red (Eastern) Rosella, and which were of great interest, tended to confirm these views, and I then put forward my view that the Hooded cock \times Many-colour hen hybrid ought to be almost exactly like the Paradise—hoping that Mr. Boosey would be able to produce it if I could not myself—we both had Hoodeds and Many-colours in those days.

One thing, however, puzzled me extremely : the Brown's \times Red (Eastern) Rosella hybrid was at first sight a Brown's with a deep blood-red cap instead of a black one—and a very beautiful bird ; now Gould records of Brown's : “ I have one specimen also with the whole of the crown of the head a deep blood-red and others with more or less of this colour,” though he regarded it as unusual, but he does mention the occasional occurrence of a band across the forehead—which Cayley also mentions. I believe no one since has ever seen such a specimen as Gould here records, yet Mr. Boosey produces an exact replica by hybridization, and the distribution areas of Brown's and the Red (Eastern) Rosella are almost at the opposite ends of Australia !

Presumably Gould's bird could not have been a hybrid—or at any rate a recent one, though perhaps a throw-back to one in a very remote past, when their areas of distribution were not so widely separated.

Without going into detail there are, in many groups of Australian parakeets, considerable variations within the range of normal with regard to colour, quite a number of which are grouped as sub-species. So also with broods of apparently normal birds : I have seen them vary considerably even in the same nest, showing I suppose, that although the parents are apparently of the same type their blood must have been mixed with that of some of their adjacent sub-species. Indeed, the evolution in colour in many Australian parakeets appears to be in a very fluid state, and such that if one could isolate certain types, new sub-species might almost be produced at will.

If then the Paradise originated as a fertile hybrid, such variation might account for any differences that may be found between the hybrids Sir Edward Hallstrom has produced and the naturally wild species—if, indeed, there are any.

Apart from producing imitations of known species by means of hybridization I have often thought that the hens of the more colourful varieties of Bluebonnet might give wonderful potentialities for the production of new colour schemes with male Hoodeds and Many-colours, but so far I do not think many hybrids have been bred with the Bluebonnet. I am not really fond of hybrids but think we may have a lot to learn from them, particularly if they turn out to be fertile.

I hope Mr. Turner will keep us fully informed as to the progress of these hybrids and if they prove fertile, and may I suggest that Sir Edward Hallstrom try the Golden-shoulder cock \times Many-colour hen hybrid also, and tell us all about both sets of hybrids from time to time, ultimately perhaps with coloured illustrations. Please do, Sir Edward—they are all such beautiful creations and we should be so grateful to know if another species (?), namely the Paradise, could have been produced by natural hybridization in the past—as well as by artificial hybridization in the present.

* * *

A DIARY FOR 1952 OF NEW ARRIVALS IN THE BIRD DEPARTMENT OF THE BROOKFIELD ZOO AT BROOKFIELD, ILL.

By KARL PLATH, Curator of Birds, Chicago Zoological Park, U.S.A.

JANUARY

An immature Florida Gallinule (*Gallinula chloropsis cachinnans*).
This species is practically identical with the one found abroad.

FEBRUARY

*Japanese Robin (*Erithacus akahige*).

Azure-winged Magpie (*Cyanopica cyanus*). These two birds were the gift of our Avicultural Society's member, Alex Isenberg, of Palo Alto, California. The Robin is a beautiful little bird much like the Robin Redbreast, but having the whole head and breast rust colour, with a dark band across the lower breast. The Magpie is a fitting mate to our old male.

Female Cordon-bleu Waxbill (*Uraeginthus bengalus*).

Births.—1 Green Shell Parrakeet, 1 Sky-blue Shell Parrakeet (*Melopsittacus undulatus*) and 1 Goldie's Lorikeet (*Psitteuteles goldei*).

APRIL

Bleeding-heart Pigeons (*Gallicolumba luzonica*) from the Gibson Ranch, St. Helena, Montana.

Young male West African Ostrich (*Struthio camelus spatzi*) from Hagenbeck at Hamburg, Germany.

MAY

- Mearn's Quails (*Cyrtonyx montezumæ*).
 *Benson's Quails (*Callipepla bensoni*).
 Scaled Quails (*Callipepla squamata*).
 *Hybrid Scaled \times Gambel's Quails (*Callipepla* \times *Lophortyx*).

These are all beautiful birds; the first two being especially showy.

- Blue Peafowl (*Pavo cristatus*).
 Black-shouldered Peafowl (*Pavo cristatus* variant).
 *Fischer's Lovebirds (*Agapornis fischeri*).
 Common Troupial (*Icterus icterus*).
 Palm Warbler (*Dendroica palmarum*).
 Myrtle Warbler (*Dendroica coronata*).
 Veery Thrush (*Hylocichla fuscescens*).
 *Bonaparte's Gull (*Larus philadelphia*). The first one of this abundant little gull (in Spring and Fall) that I have ever seen in captivity.
 Humboldt Penguin (*Spheniscus humboldtii*).

JUNE

- Java Sparrows (*Padda oryzivora*).
 Bluebirds (*Sialia sialis*).
 American Goldfinches (*Astragalinus tristis*).
 Grey Parrot (*Psittacus erithacus*).
 Sora Rail (*Porzana carolina*).
 Sparrow Hawks (*Falco sparverius*).
 *Long-wattled Umbrellabird (*Cephalopterus penduliger*).
 *Black and white Manakins (*Manacus manacus*).
 *Blue-capped Manakins (*Pipra velutina*).
 *Greater Rufous Motmots (*Uraspatha martii*).
 *Red-bellied Trogon (Masked Trogon) (*Trogon personatus*).
 Scarlet Flycatcher (*Pyrocephalus rubineus*). Within the month of September the male of this gorgeous little bird lost all of its scarlet colour without an obvious moult. Where it had been red it is now pure white with a slight tinge of pink on the crest. The wings and tail are as before, blackish-brown. This is quite different from the experience of Dr. Joachim Steinbacher (Frankfurt-am-Main, Germany). His male assumed a speckled grey dress probably much like that of the female. Our female shows the spotted markings a trifle paler than in his illustration and it still has the pinkish tinge on the lower abdomen. Dr. Steinbacher's article appeared in the May-June, 1952, issue.
 *Turquoise Jay (*Cyanolyca turcosa*). A most beautiful blue bird with a black band surrounding the brighter blue throat.
 Yellow Sparrows (*Auripasser luteus*).
 Shama Thrush (*Kittacincla macroura*).

- Cordon-bleu Waxbills (*Uraeginthus bengalus*).
 Nonpareils (*Passerina ciris*). Purchased under the name of Butterfly Finch, but they have since replaced their dull yellow underparts with the normal scarlet.
 Lavender Finches (*Estrilda caeruleus*).
 Crowned Cranes (*Balearica pavonina ceciliae*).
 Common Sheld-Ducks (*Tadorna tadorna*).
 *Bar-headed Goose (*Anser indicus*).
 *Sun Bittern (*Eurypyga helias helias*).

JULY

- Sora Rail (*Porzana carolina*).
 Purple Gallinule (*Porphyryula martinica*).
 Piping Guan (*Pipile cumanensis*).
 *Taczanowski's Yellow-tailed Oriole (*Icterus mesomelas taczanowski*).
 *Chestnut-crowned Redstart (*Myioborus ruficoronatus*).
 Blue Jay (*Cyanocitta cristata*).
 Least Bittern (*Ixobrychus exilis*). The most beautiful of the smaller herons, but seldom seen and not easy to keep in captivity.
 Snake Birds (*Anhinga anhinga*).
 *Schalow's Touraco (*Tauraco livingstonii schalowi*). One of the handsomest.
 Killdeers.
 Flicker (Golden-winged Woodpecker) (*Colaptes auratus luteus*).
 Swainson's Lorikeet (*Trichoglossus hamatod moluccanus*). This bird escaped from its outdoor flight four years ago. It was brought in by its second owner since then.

AUGUST

- Blue Jay (*Cyanocitta cristata*).
 Imm. Yellow-crowned Night Heron (*Nyctannassa violaceus*). Curious because its northern breeding range is but until recently 250 miles south of Chicago. It was taken in the Chicago region. Normally breeds in the southern states.
 Bar-head Goose (*Anser anser*).
 Yellow-naped Amazon (*Amazona ochrocephala auroballiata*).
Births.—Goldie's Lorikeets, Spengel's Parrotlets, Queen Alexandra's Parakeets, Crimson-winged Parrakeets, Shell Parrakeets, Crested Pigeons.

SEPTEMBER

- Female Cardinal (*Richmondia cardinalis*). Captured in the grounds.
 Wood Ducks (*Aix sponsa*).
 King Penguins (*Aptenodytes patagonicus*).
 Hermit Thrush (*Hylocichla guttata faxoni*). Captured in the grounds.
Births.—Hybrid Northern × Pale-headed Rosellas.

OCTOBER

Virginia Rail (*Rallus limicola*.)

Wood Duck (*Aix sponsa*).

Shell Parrakeet (*Melopsittacus undulatus*). This bird had escaped from someone and took refuge in one of our large outdoor parrot aviaries and lived peaceably with many of the larger species.

Albino Robin (*Turdus migratorius* variant). Snowy white all over.

*Meadow Lark (*Sturnella magna*).

Shell Parrakeets of various colours from Delacour's collection in Clères.

Reddish Egrets (*Dichromanassa rufescens*).

American Egret (*Casmerodius albus egretta*).

White Ibis (*Guara alba*).

*African Golden Orioles (*Oriolus oriolus*).

*Yellow Rail (*Coturnicops novæ boracensis*). A seldom seen species caught on the University campus near Baton Rouge, Louisiana, while the writer was on the A.O.U. Convention there.

Secretary Birds (*Sagittarius serpentarius*).

Births.—Nyasa Lovebirds (*Agapornis lilianæ*).

NOVEMBER

*Pair of Grand Eclectus (*Lorius roratus*).

*Pair of Alexandrine Parrakeets (*Psittacula eupatria magnirostris*).

*Pair of Plum-headed Parrakeets (*Psittacula cyanocephala*). An exchange with our Avicultural member F. H. Rudkin, Fillmore, California.

Orange-headed Ground Thrushes (*Geocichla citrina*).

Brown-backed Solitaires (*Myadestes obscurus*). A gift from our Avicultural member Ray Thomas, Beverly Hills, Calif.

Cockatiel.

DECEMBER

*Lesser Hill Mynah.

*Greater Scaup Duck.

Births.—Goldie's Lorikeets, Zebra Finches.

* New to the collection.

* * *

LONDON ZOO NOTES

By J. J. YEALLAND

The whole of one side of the Tropical House has been furnished with tropical plants, including orchids, and is now devoted to Humming-birds of which twenty-two specimens of six forms arrived some five weeks ago.

The Golden-throated (*Polytmus guainumbi thaumantias*) and the Red-throated Sapphire (*Hylocharis sapphirina*) are new to the collection; the remainder consist of Waterton's Wood Nymph (*Thalurania watertoni*); Pucheran's Emerald (*Chlorostilbon aureoventris pucherani*); Blue-breasted Sapphire (*Chlorestes notatus*), and another not yet identified which might be immature *Amazilia leucogaster*.

These birds are being fed on the liquid diet recommended by M. Cordier and plenty of fruit flies. The fateful forty days of which M. Cordier writes have almost passed and there have been no losses so far. This happy state could be attributed as much to the perfect condition of the birds on arrival—due to some excellent packing and to air travel—and to the amount of exercise they are able to take in this large flight as to the food they have received here.

Two Sunbirds new to the collection have been received from Messrs. Seago and Bloom; they are the Nandi Double-collared (*Cinnyris reichenowi*) and the Uganda Olive-bellied (*C. chloropygius orphogaster*); also four of the Sudan Beautiful Sunbird (*Nectarinia pulchella lucidipectus*) and a single Uganda Green White-eye (*Zosterops virens stuhlmanni*).

An Active Parrot (*Amazona agilis*) and a Red-throated (*A. collaria*) were brought from Jamaica and presented by Lieut.-Col. Legard. It appears that these two Parrots are not uncommon in certain parts of the island.

Other presentations include an African Sea-Eagle (*Cuncuma vocifer*); three Silver Pheasants; a Tropical Seed Finch; a Guttural Finch; a Nepal Hill Myna; a Festive Parrot; a Pennant's, a Black-tailed, and a Quaker Parrakeet.

A number of the Owls have laid, but unfortunately many of them are without mates and only the Great Eagle-Owls have young ones. The other Eagle-Owls that have laid are the Turkestan, the Fraser's, the Cape, and the Abyssinian Spotted. Both the Spectacled have eggs, and the Ceylon Fish Owls have laid a second clutch.

Greenland White-fronted, Upland Geese, Egyptian, Canada and Grey Lag have eggs; also New Zealand (second clutch) and Common Sheld-Duck, as well as the usual Carolina and Red-crested Pochard. The Choughs are sitting on six eggs and Pheasants, including Temminck's and Swinhoe's, have laid, as have Magellan Penguins and a Gannet. A further three Black-footed Penguins have been bred.

The King Penguin hatched last August has almost completed its moult and a tuft of down on its head is all that remains of the baby plumage.

* * *

BRITISH AVICULTURISTS' CLUB

The thirty-eighth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 13th May, 1953, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss K. Bonner, Mrs. V. M. Bourne, G. T. Clark, Mrs. G. T. Clark, T. Crewes, P. L. Dabner, A. H. D'Aeth, W. T. Dring, Mrs. W. T. Dring, B. H. Dulanty, O. E. Dunmore, J. F. M. Floyd, Miss S. A. Fothergill, J. C. Garratt, Miss D. Gask, H. J. Harman, Miss E. M. Knobel (Club Hostess), Miss M. H. Knobel-Harman, Dr. F. B. Lake, P. H. Maxwell, S. Murray, K. A. Norris, A. A. Prestwich, R. C. J. Sawyer, E. N. T. Vane, C. H. Wastell, H. Wilmot.

Guests : Dr. K. W. Aylwin-Gibson, J. Bailey, Miss D. Dabner, Mrs. J. C. Garratt, Miss H. Gentry, Mrs. F. B. Lake, Mrs. S. Murray, Miss C. D. Nunn, Mrs. D. Seth-Smith, Miss K. Tousey, Miss M. White, Mrs. C. H. Wastell, Mrs. H. Wilmot.

Members of the Club, 29 ; guests, 13 ; total, 42.

Miss Katharine Tousey, of the Massachusetts Audubon Society, showed the film *Audubon's America*. While, perhaps primarily intended for showing to ornithologists, it nevertheless contained much of very considerable interest to aviculturists generally. The film, the joint effort of a dozen or so photographers, gives a very good idea of the country through which Audubon made his journeys, pioneer from the ornithological point, and shows many of the birds he depicted in his monumental *The Birds of America*.

Miss Tousey not only gave a running commentary, but showed her versatility by imitating the call of many of the birds shown. Members are indebted to Miss Tousey for the opportunity of seeing a very informative film.

ARTHUR A. PRESTWICH,

Hon. Secretary.

* * *

DIAMOND JUBILEE OF THE AVICULTURAL SOCIETY 1894-1954

The year 1954 marks the Diamond Jubilee of the Avicultural Society. The Society's Golden Jubilee in 1944 could not, unfortunately, be celebrated owing to the war; the occasion was, however, marked by a special Jubilee Supplement of the AVICULTURAL MAGAZINE.

The President and Council feel that the forthcoming Jubilee should be commemorated in a manner worthy of the Society. It has, therefore, been decided to hold an Avicultural Congress in London, 16th-19th June, 1954.

Invitations to attend are being sent to prominent aviculturists throughout the world.

During the four days of the Congress there will be visits to the principal collections, papers will be read, and lunches and dinners arranged.

This preliminary notice is being given at such an early date in the hope that as many members as possible will arrange to be present and give their support to an event certain to add greatly to the Society's prestige.

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

Preliminary reports indicate that this will prove to be a bad season for breeders, of parakeets at least. The most interesting birth so far is of a young Moustache Parrakeet, now five weeks old, in the aviaries of E. N. T. Vane.

* * *

The American Pheasant Society has bestowed its greatest distinction, the title of Master Breeder, on John Willis Steinbeck, of Concord, California, "for outstanding accomplishment in the field of pheasant propagation."

Dr. D. S. Newill, Connellsville, Pennsylvania, whose work was also outstanding, received Honourable Mention.

* * *

The "Parrots and Miscellaneous Birds (Prohibition of Importation) (Amendment) Order, 1953" authorizes the relaxation of the ban on the importation of birds of the Parrot family into Great Britain from Jersey, the Isle of Man, and Northern Ireland. The ban was

relaxed as from 8th May because the three authorities concerned have now imposed similar restrictions on the importation of Parrots from abroad to those at present in force in Great Britain.

* * *

C. af Enehjelm, Helsingfors, reports : " This year I have bred two Peach-faced Lovebirds, one in each of two nests, indoors. Cherry Finches have had two, four, and now three young. Two other pairs have not yet made any attempt. Cuban Finches, a nest of two, and another pair two young still in the nest. Golden Song Sparrows have two young. Two pairs of Bichenows and one pair of Red-headed Parrot Finches are sitting. One pair of *Forpus passerinus* has six young in the nest, and another pair has two. Black-crested Finches (*Lophospingus pusillus*) are sitting on two eggs. I bred this species in 1951 in an outdoor aviary, using the same hen, so I hope to be successful again."

* * *

The smuggling of birds into the United States appears to be greatly on the increase.

A U.S. attorney has expressed the belief that bird smugglers are now doing a larger business than narcotics smugglers. A member of the federal legal staff has said that virtually all the " quality " parrots and parrakeets are smuggled into the U.S. through Mexico.

The arrest has recently been announced of three persons said to be members of an international smuggling ring, " in a million dollar operation handling 70,000 birds annually." The three were released on \$5,000 bail each at their appearance before the U.S. Commissioner on charges of conspiring to smuggle tropical birds.

The authorities are determined to prevent illegal importations. Considerable prominence is given in the Press to prosecutions and a few recent captions are : " Customs Agents seize 1,100 Birds " from two smugglers ; " Smuggler sentenced to 6 months for smuggling 304 birds from Mexico " ; " Parrot-smuggler draws \$500.00 fine on charges of smuggling more than 600 parrots into the United States."

There is a total commercial ban on psittacines, and legally only not-for-sale pets are allowed to be imported. Persons who have been outside the U.S. for more than four months are allowed to take in two such birds each year, provided they have been in their possession the whole of that time.

* * *

WATERFOWL RINGING SCHEME—DETAILS OF RECOVERIES:—

<i>Date ringed.</i>	<i>Species.</i>	<i>Ringed by.</i>	<i>Date recovered.</i>	<i>Place where recovered.</i>
23.8.1951	Grey Lag Goose	Lt.-Col. H. C. Cator, Norwich.	3.3.1953	Wroxham, Norfolk. Killed by lorry.

An Amherst Pheasant cock, wrongly carrying one of the Society's waterfowl rings, escaped from near Preston at the end of October, 1952. Six months later the Wigan police reported its arrival at a local farm, from where it has now been recovered by its owner.

A. A. P.

* * *

REVIEWS

OISEAUX DE CAGE. By M. LEGENDRE, with illustrations by L. DELAPCHIER. Éditions N. Boubée & Cie, Paris, 1952. Price 1,200 francs.

Since the second edition of *Les Oiseaux* by J. Delacour and M. Legendre, which was published in 1934 and quickly sold out, no book on aviculture has been published in France. The manual under review is therefore long overdue and will be greatly welcomed, particularly by French-speaking aviculturists. As the author states in his preface, in order that the book may be included in the special series published by Messrs. N. Boubée, and space is limited, only the Passeriformes and some families belonging to nearly related orders are dealt with. Parrots and Doves are not included and the author states that he hopes to deal with them in a later volume. The collection, which forms a very diverse group from the avicultural point of view, contains the species most popular as cage or aviary birds and those which are of particular interest to aviculturists rather than those which are rarely imported.

The book is divided into sections, the first containing general remarks on keeping birds in captivity, and this is followed by chapters on cages, food, rearing of young birds taken from the nest, mutations, and illnesses and diseases. After this various species are dealt with individually, a short description of plumage, etc., being given, with notes on the birds' adaptability to captivity. The book concludes with a summary of the most important points which must be regarded when keeping birds in captivity, a full bibliography and an index to all species under both the popular and scientific names.

The book is profusely illustrated with 12 colour plates, depicting 79 species, 53 black and white drawings, and 7 tail pieces by L. Delapchier. In addition there are 12 half-tone plates which include some very interesting photographs of cages varying from the "cages de luxe" of Japan to a cage for a blinded Chaffinch.

Monsieur Legendre has a vast and detailed experience in keeping birds and the book is full of most valuable information. A foreword is contributed by Professor J. Berlioz.

P. B-S.

FOREIGN BIRDS FOR BEGINNERS. By D. H. S. RISDON, F.Z.S.

Cage Birds. London, 1953. Price 10s. 6d. net.

Whilst the title to this book is most apt it is inclined to give the impression that this is a re-hash of a very old work, which it most certainly is not. It may be fairly stated, without fear of contradiction, that no treatise on this subject has previously dealt with the matter so concisely, clearly, and in such an interesting manner.

Every reader should peruse the preface carefully, it contains some very useful axioms. Many experienced bird-keepers may well differ with some of Mr. Risdon's remarks, but if they apply common sense and allow for individuality in birds, as suggested in his preface, they will find no cause for real disagreement. It is a book for all bird-keepers and should be in every aviculturist's collection.

The coloured plates are most helpful to identification, if not of great artistic worth, but they fulfil their immediate purpose admirably. It is unfortunate that the wrapper portrays non-existent gems of aviculture, as this may well result in more knowledgeable bird-keepers jumping to the conclusion that it is written by someone not well acquainted with the subject. To those people therefore may I say : " Don't be put off."

E. N. T. V.

* * *

NOTES

Parrots in Captivity

Listed in the Bibliography of *Records of Parrots Bred in Captivity* is the classic work, " Greene, Dr. W. T., *Parrots in Captivity*, 4 vols. (1884-88)."

A correspondent queries the correctness of the number of volumes. It may, therefore, be of interest to those in possession of this work if the position is clarified.

Parrots in Captivity appeared first in parts, of which parts 1 to 18 formed volumes i and ii. Volume iii consisted of parts 19 to 27, and half of part 28. The remainder of part 28, with parts 29 and 30 formed an unfinished volume iv, now extremely scarce. Messrs. Wheldon and Wesley, Ltd., recently had a set in parts pass through their hands, and I am indebted to them for this information. Volume iv consists of 36 pages with chapters and coloured plates of birds described as the Ceram or Chattering Lory, Red Lory, Reticulated or Blue-streaked Lory, Scaly-breasted Lorikeet, Malaccan or Long-tailed Parrakeet, and Malabar Parrakeet ; together with plates of Stanley's Parrakeet, African or Rose-ringed Parrakeet, and Horned Parrakeet.

There is a four volume set in the Library of the Zoological Society of London.

A. A. P.

BREEDING OF ROCK BUNTING (*Fringillaria tahapisi tahapisi*) IN SOUTH AFRICA.

A querist correspondent of mine, Mr. R. G. Atkin, of Plumstead, Cape Province, South Africa, informs me that he has bred *Fringillaria tahapisi tahapisi* the Rock Bunting or Klip-mossie. They nested in a hanging basket containing hay, suspended about three feet from the ground. Three bluish eggs heavily marked with reddish-brown were deposited. Eggs were laid 22nd February, 1953, young hatched 7th and 8th March, 1953. Eyes were open 15th March, 1953, and the three young left the nest on 20th and 31st March. Although strong on the wing they kept much to the ground. Further young were hatched 8th April, 1953. In addition to their seed, bread and milk, mealworms, and termites available in quantity were supplied, and also seeding grasses. There seems to be no previous record of breeding of this particular species.

ALLEN SILVER.

CORRESPONDENCE

BREEDING OF GREY PARROTS IN INDIA

It must be a great many years ago now that I was told about the Grey Parrots in India, and I am very interested to hear that it was Sir Godfrey Davis who told me.

All I remembered—and I must confess that as I get older my memory gets worse and worse!—was that a gentleman who had spent some years in India came to visit our farm, and said that he had *been told* of someone in India who had such a prolific pair of Greys that he, as it were, hardly knew what to do with the young ones.

As I knew from experience how difficult it is even to mate a pair of Greys successfully, let alone to breed from them, I was naturally sceptical—the more so because, in my experience, Greys go in for very small clutches of two or three eggs and the young spend a very long time indeed in the nest, so one would be most unlikely ever to have a glut of them.

I am not sure to which article of mine Sir Godfrey refers, but if, in it, I gave the impression that I thought the story was simply an invention on *his* part, I must have expressed myself very badly, and hasten to apologize for—as the newspapers say—any inconvenience it may have caused him!

Incidentally, I should not have said that being a bad judge of character was among my many failings, and if I have become a particularly “disbelieving fellow”, it may well be because my credulity has been sometimes strained to breaking point by—to give but one example—some visitor or other to our farm who solemnly assured me that they had heard of someone who had high hopes of breeding red Canaries, as they had recently bred a brood of Firefinch × Canary hybrids! Naturally I assumed that I was intended to treat this as a great joke, until I realized that my informant took it quite seriously!

EDWARD BOOSEY.

BRAMBLETYE,
KESTON, KENT.

THE PROBLEM OF THIRD BROODS OF PARRAKEETS

My objection to the Duke of Bedford's two suggested methods of preventing a hen Turquoise from having three nests is that both tend to risk the second brood, in order to make sure that there shall not be a third. There is, for instance, always the chance that a hen, suddenly left to finish off the rearing of her brood single-handed, may tire of her task and either give them insufficient food or stop feeding them altogether.

The Duke's second method entails doing the very thing I always avoid if I possibly can—namely taking away the young ones before they are fully independent of their parents. Occasionally, if the parents start moulting and neglect them, one is forced to do this, and the young have to learn to feed themselves as best they can, but I would never do it unless I was left with no alternative. Then, too, they have first to be caught up, and to do this the Duke recommends that one “should go in and net the whole brood as quickly as you can before they have time to do themselves serious damage” to which—knowing how wildly young Turquoisines batter about if one so much as approaches their aviary—I can only say, with the late Dr. Joad, it all depends what you mean by serious damage!

The Duke asks if I can say how many hens I have lost before they put up the old hen's satisfactory record, and if he means, as presumably he does, how many have I lost through letting them over-breed—the answer is quite definitely none; if only because all the other hen Turquoisines I have kept were apparently staunch believers in a particularly rigid form of birth-control!

I cannot say how many of the young of the third broods have matured into good breeding stock, because those we kept for breeding purposes were among the first young ones the old pair ever reared here, but I can truthfully say that, not in one single instance was there any sign whatever of weakness or degeneracy among the third broods.

EDWARD BOOSEY.

BRAMBLETYE,
KESTON, KENT.

CANDIDATES FOR ELECTION

- F. E. BADRICK, 24 The Mall, Clifton, Bristol 8. Proposed by Miss K. Bonner.
H. BARD, 5 Alpha Road, Hutton, Brentwood, Essex. Proposed by Miss K. Bonner.
— BERRAWS, 49 Englested Close, Birmingham 20. Proposed by Mrs. G. T. Clark.
M. BEULCKE, 54 Jan Breijdelaan, Kortrijk, Belgium. Proposed by A. A. Prestwich.
THE VISCOUNTESS BURY, Mount Stewart, Newtownards, Co. Down, N. Ireland.
Proposed by Dr. E. Hindle.
D. F. CASTLE, "Clive Cottage," Stockens Green, Knebworth, Herts. Proposed by
J. H. Reay.
J. CRAIG, 111 Glen Avenue, Larkhall, Lanarkshire. Proposed by Miss K. Bonner.
— DOLTON, Sundown, Oakleigh Avenue, Hallow, Worcester. Proposed by Mrs.
G. T. Clark.
G. FLAXMAN, 618 Layard Street, London, Ontario, Canada. Proposed by Miss K.
Bonner.
R. S. GILBERT, 160 Heath Park Road, Gidea Park, Essex. Proposed by Miss K.
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G. A. GJESSING, "Woodberry Hill," Konnerud, Drammen, Norway. Proposed by
Mrs. G. T. Clark.
E. H. GOOD, Buckland Fields, Lymington, Hants. Proposed by Mrs. E. H. Good.
J. HAYES, 113 Stuart Street, Boston, Mass., U.S.A. Proposed by A. A. Prestwich.
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Proposed by Dr. E. Hurlburt.
A. STEVENS, 56 Gwencole Crescent, Braunstone, Leicester. Proposed by A. A.
Prestwich.
S. A. TAMBLYN, "Penlaurel," South Petherwyn, Launceston, Cornwall. Proposed
by H. E. Miller.
Dr. J. J. A. VAN DER MERWE, P.O. Box 36, Bellville, C.P., South Africa. Proposed
by W. R. Carthew.
A. WATSON, 24 River Street, Brechin, Angus, Scotland. Proposed by Miss K. Bonner.
R. YOUNGHUSBAND, Ghyll Mount, Ellenborough, Maryport, Cumberland. Proposed
by Miss K. Bonner.

NEW MEMBERS

The twenty-four Candidates for Election, proposed in the March-April, 1953,
number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

READMITTED

- P. H. HASTINGS, 182 Sultan Road, Landport, Portsmouth.
Dr. H. WILDEBOER, "Burnbrae," Holderness Road, Hull, Yorks.

CHANGE OF STYLE

Lt.-Colonel C. C. GEERTSEMA.

CHANGES OF ADDRESS

- Mrs. M. BENNETT, to 3 Adversane Road, Worthing, Sussex.
L. DALE GOETZ, to 2537 N. Austin Blvd., Chicago 39, Ill., U.S.A.
Dr. J. R. HODGES, to 17 Bloomsbury Square, London, W.C. 1.
A. H. ISENBERG, to 451 Portola Road, Woodside, Calif., U.S.A.
J. A. LOAR, to 8 Coleridge Road, Wyken, Coventry.
I. B. MILLIGAN, to 5 Silsey Avenue, Sale, Cheshire.
G. W. NOREEN, to 10451 Rainier Avenue, Seattle 88, Washington, U.S.A.
J. RODGERS, to Balland House Cottage, Ashburton, Devon.
J. W. C. SUTTON, to Salthouse, Holt, Norfolk.

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	£	s.	d.		£	s.	d.
W. L. EAVES . . .	1	2	0	A. H. ISENBERG . . .	15	0	
S. PORTER . . .	1	0	0	R. J. HANSEN . . .	10	0	
G. BANKS . . .	10	0					

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The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

First Annual Report (1947-1948) Severn Wildfowl Trust.—Lt.-Colonel C. C. GEERTSEMA, Boschwyk, Soestdyk, Holland.

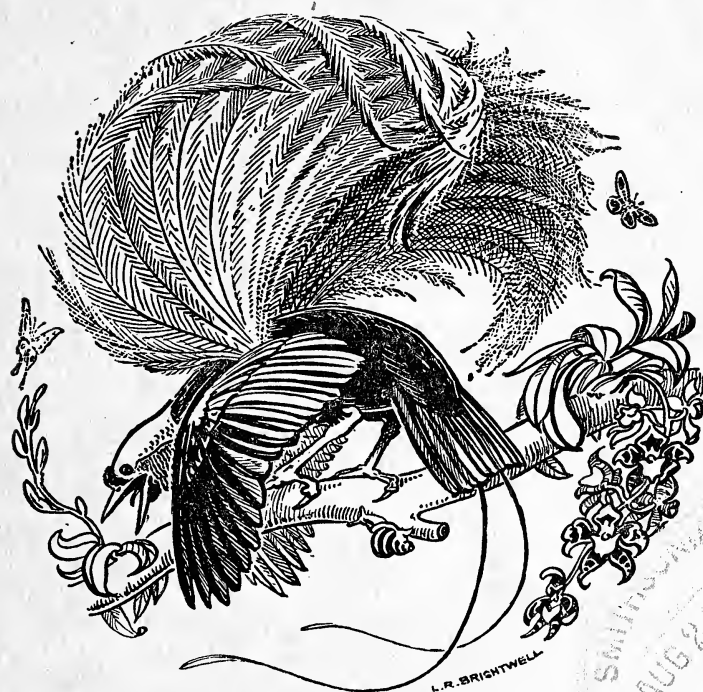
Breeding pairs of Rosellas, Barrabands, and Red-rumps.—J. F. INGLIS, Montgarrie Road, Alford, Aberdeenshire.

AUSTRALIAN PARROTS IN CAPTIVITY

A series of articles by Alan Lendon published in the Avicultural Magazine. A full account of 60 species of Australian Parrots is included in the book which deals where possible with the author's personal experiences in keeping them in captivity in South Australia.

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AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

**Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
Oakwood, London, N. 14.**

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Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

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The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

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AVIARY SEEN THROUGH SITTING ROOM WINDOW.

[J. Delacour

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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JULY-AUGUST, 1953

MY CALIFORNIA AVIARIES

By J. DELACOUR (Los Angeles, California, U.S.A.)

After nearly twelve years of life in New York City, on the 16th floor of a Fifth Avenue building, I have moved to California as Director of the Department of History, Science and Art of the County of Los Angeles. A main change in my life has resulted from the mildness of the climate and the consequent possibility of keeping outdoors, with little trouble, a number of semi-tropical, or tropical, plants and birds. Last summer I bought a small house in one of the many charming residential sections of this unusual city, which is really a collection of suburban towns. Its tree-lined avenues and gardens make it country-like and attractive. The rare advantage of my new house is that the garden at the back (the back-yard, as it is called in America) is crossed by a small natural stream, running all the year round at the same speed, notwithstanding the six months of dry weather which Southern California enjoys (more or less !) between May and October. Such permanent streams are as rare here as they are on the Riviera.

The garden, 300 feet deep, is cut by a deep ravine which has been skilfully laid out as a rock garden, with a long Japanese bridge crossing it. Near the house I have made a pond for lotus and blue water-lilies, and the sunny far end of the garden has been reserved for cacti and succulents. The rest is nicely shaded by trees, full of camellias and azaleas. I have added many species of forest palms, ferns, aroids, bromeliads, orchids, and other interesting plants. It looks like a large conservatory.

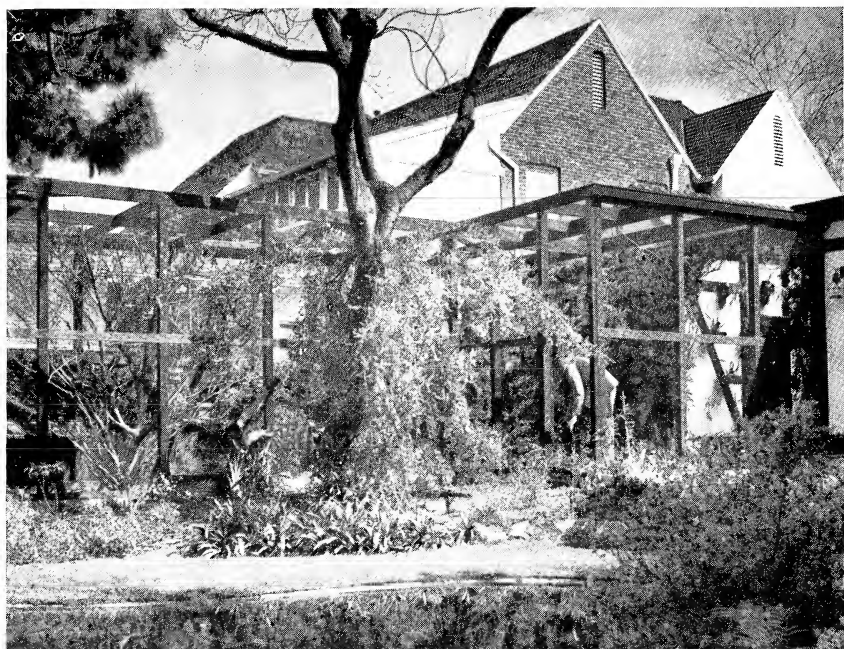
I had, of course, to keep birds. Possibilities, however, were limited. I did not want to spoil the garden, and in town, noisy things, which might bother neighbours, are not allowed. At the north side of the garden, by the house, is a garage which I promptly turned into a bird house. Nearby, a large window of the sitting-room looked on to a narrow (10 feet) passage of drab bricks. This was transformed into

an aviary, partly covered with transparent plastic, partly with a half-inch wire netting roof. It is 12 feet high, 24 feet long, and including the slice of the garage used as a shelter, 20 feet wide. Properly laid out and planted it looks really charming, and birds do well in it. Along the fence, on the north side, there is a full partition up to 6 feet, and a shelter is provided at the top by a vertical 18 inch wide strip of plastic with another one of the same width on the roof of the aviary. No heating is necessary, as frost does not occur there. This first aviary has a population of finches, one or two pairs each of most of the Australian species; Lavenders, Ruddies, and Cordon-bleus; Avadavats; Auroras; Rainbow Buntings; Red Hooded Siskins; Pintail Nonpareils, etc., about sixty altogether. There are also pairs of Painted Quails, Mountain Witch, Bartlett's, Silver Diamond, Talpacoti, and Pigmy Doves; a Shama; Giant Whydahs; a pair of Bourke's Parrakeets, and a few Sugar Birds. When the housekeeper, who takes my place in the care of the birds when I travel, has sufficient experience, more difficult birds will be added, such as small Tanagers and Sunbirds. As the garden is usually occupied by wild Humming-birds, it is not necessary to keep any in confinement where space is very limited. It is a constant delight to watch the birds from the window which constitutes a useful observation post.

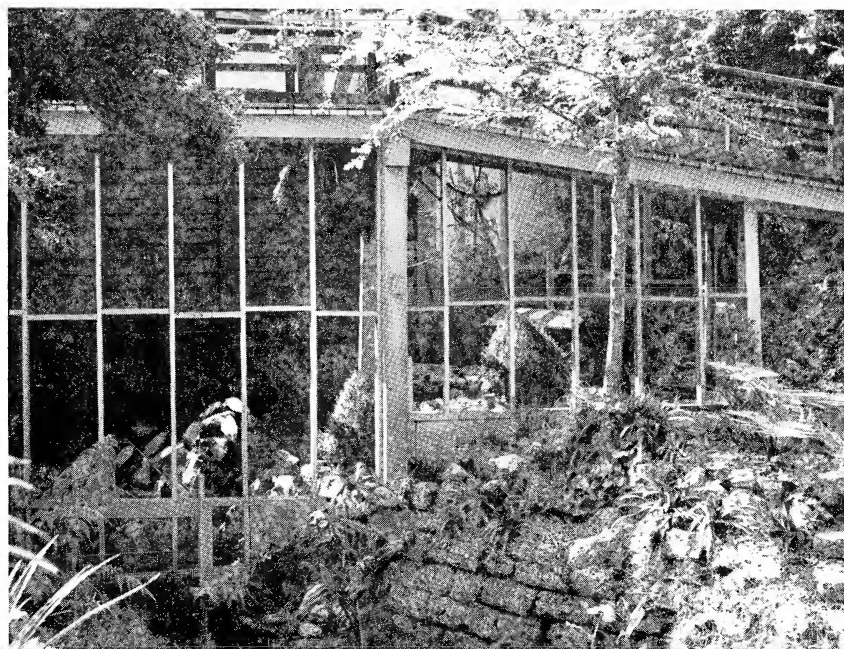
Along the fence following this first aviary is a similar one, 28 feet long, 10 feet wide. It contains a pair of Palawan Peacock-Pheasants; pairs of Harlequin Quails, Bleeding-heart, Ashy and Diamond Doves, Diamond Sparrows, Australian Crimson Finches, several varieties of Zebra Finches, Red-crested Finches, Cuban Finches, Indian White-eyes, and a European Song Thrush.

There was an obvious location for another aviary between the bridge and the solid fence on the south side of the garden. It was only a question of roofing over the space between the wall and the bridge, and of building wire partitions under the bridge and on the sides. The result is a large flight, 50 feet and 20 feet, very high in the centre over the stream which flows in a deep gully. I keep there a few small ducks and teal, Mandarins, Puna and Sharp-winged Teal, Maned Geese, Lesser Indian Whistling-Ducks; some doves: Brush Bronze-wings, Cassin's, Peruvian Ground, Green-winged, Chiriqui Ground-Pigeons, and a few other birds such as Pekin Robins, Orange-headed Thrush, Spectacled Jay-Thrushes, a European Blackbird, Dyal Bird, Tricoloured Spreos, and Purple-headed Glossy Starlings.

These Californian aviaries are few in number and small in size compared to those at Clères and, in the long past, at Villers. But they are suited to the present circumstances and very attractive, giving me much pleasure. At past sixty I am just as thrilled as ever by watching my birds, and I still enjoy caring for them as I did when I was ten years old. Bird lovers are incorrigible, I am afraid.



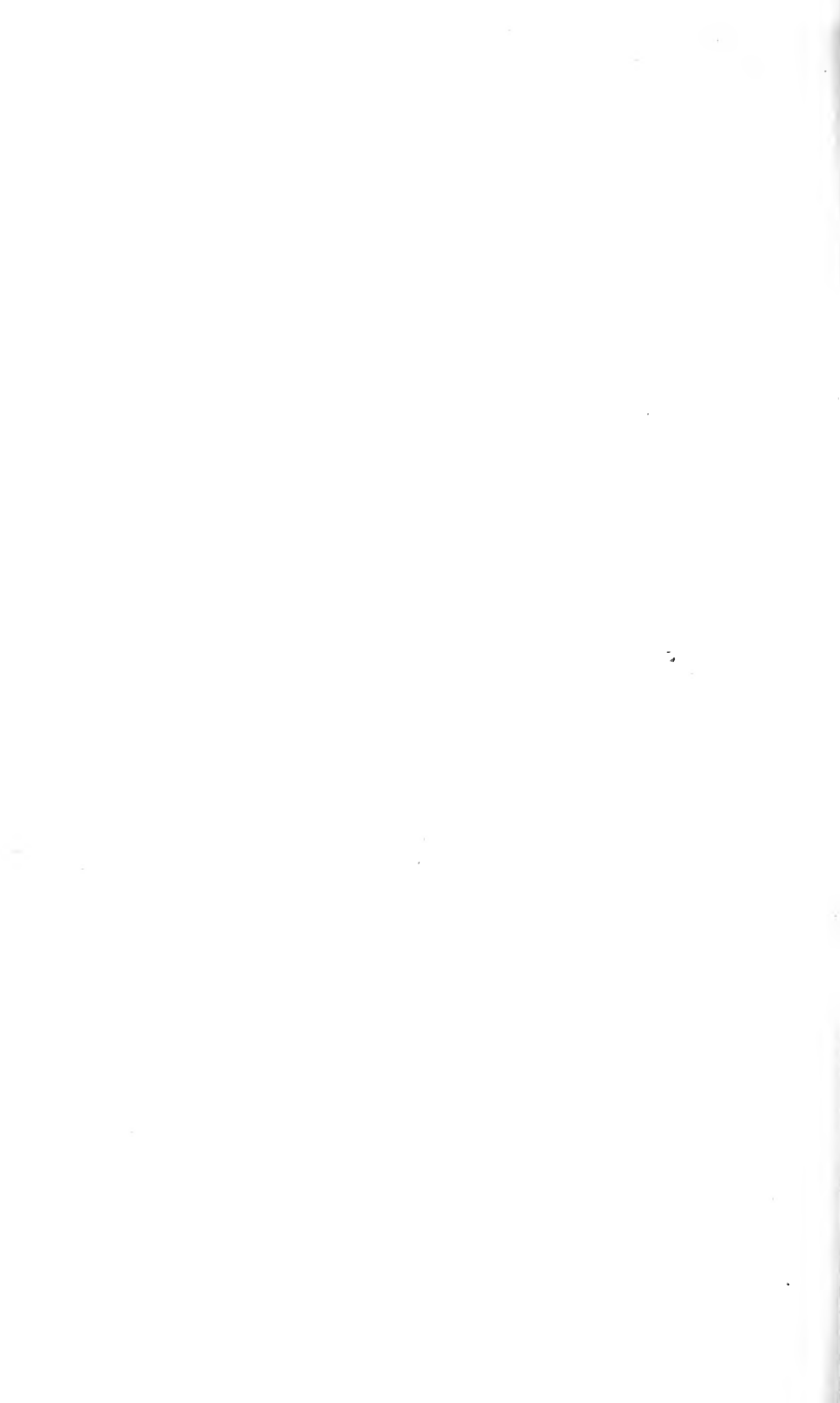
THE AVIARIES BY THE HOUSE.



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THE AVIARY UNDER THE BRIDGE.

[J. Delacour.



BUDGERIGARS AT LIBERTY IN DEVON

By THE DUKE OF BEDFORD (Woburn, Bedfordshire, England)

The homing budgerigars at Endsleigh, near Tavistock, have now entered on their second season and are doing well, losses during the winter having been few. The foundation stock consisted of a few pairs of homers from Woburn and purchased untrained birds from two or three different sources. Of the purchased birds five cocks and three hens still remain, the rest of the flock, about sixty altogether, being made up of homing birds from Woburn and young bred in the aviary. As is usual, the non-homing foundation birds have not given a particularly good account of themselves and of those that remain only a cock and a hen go in and out of the aviary with any regularity, the remainder behaving as "non-exits", i.e. birds which do not go out at all. I am finding also that for flying at liberty the modern show type of budgerigar is not so good as a more slender, active, long-winged bird which would not satisfy the judges. The show budgerigar is not only apt to be slow-witted, but also slow in flight and, if it should go out, is more liable to fall a prey to Sparrowhawks which in this district are very abundant.

As at the beginning of the season I had more cocks than hens in the aviary, I sent down some spare homing hens from Woburn, intending to have two breeding teams in succession. The reason for this was that I had discovered that on no account must the "breeding atmosphere" of an aviary be upset by returning to the "resting" aviary, in the middle of the summer, all hens that have reared two broods, in order to prevent overbreeding. I had hoped to turn half the hens from the resting aviary into the liberty aviary about 15th February, and the remainder at the end of June when the first lot were returned to the resting aviary after rearing two broods. The plan, however, did not work out very satisfactorily either here or at Woburn as, although the majority of the unmated cocks did not interfere unduly with the breeding pairs, a few were very troublesome. In order to secure the double aim of maintaining the breeding atmosphere in the aviary until autumn while at the same time preventing individual pairs from overworking themselves, I have now limited, in the case of the adult birds, not the number of broods but the number of eggs they are allowed to hatch, and this plan promises to work extremely well. Those pairs which have reared two full broods are only allowed to hatch a couple of eggs in any subsequent clutches they may lay before the end of the season. The rearing of two young is not a serious strain on any hen budgerigar who has a mate to help her. Indeed, I think she keeps just as healthy and happy when so engaged as when condemned to a life of unnatural boredom in the hens' resting aviary.

Seeing that things were not going too well on the "double-shift" plan, I decided to take the risk, in mid-May, of adding to the breeding and liberty aviary nearly all the hens left in the resting aviary. Usually it is inadvisable to introduce new hens where others are breeding, as fighting and disturbance are very likely, but in this case fortunately the new hens, most of which were in heavy moult when put in caused no serious trouble. This, however, can hardly be said to have been due to the fact that, being in moult, they were not in breeding condition for, as always happens if you put moulting, albeit healthy hens in an aviary where breeding is going on, they immediately stopped moulting and started to take an interest in the nest-boxes, laying but very little later than those which are not in moult. It is, of course, well known that budgerigars, like other birds which nest in colonies, are, for some strange reason quite unconnected with physical health, much stimulated to nest by the presence of companions. My own view is that a hen budgerigar who would be slow to nest if kept in an aviary alone with her mate, goes to nest readily in an aviary containing other hens, not because she likes her female companions, but rather for the opposite reason. Her greatest joy in life is to own a nest which she knows another hen wants or, failing that, one so near to the nest of the other hen that she is aware that her proximity will cause the latter acute annoyance! This spirit in hen budgerigars is indeed somewhat akin to that of members of the British public who will always co-operate together much more loyally and effectively if inspired by hatred to a common enemy than they can ever be persuaded to do from the more Christian motive of love of their fellows!

When I first came to Devonshire in the middle of May the actual display of birds at liberty was a little disappointing. This was partly due to the fact that this year, like last, the first round of eggs had hatched rather badly, eight pairs producing only sixteen young birds. A further cause of trouble was a particularly objectionable Sparrowhawk which had been visiting the aviary very regularly and might have taken one or two of the young birds and driven others away. Normally a Sparrowhawk has considerable difficulty in capturing an adult budgerigar, which is too swift and wary, but it will take young ones not long out of the nest in addition to upsetting the nerves of the whole aviary. In this particular instance the hawk's visits had turned practically all the old breeding birds into non-exits as, discovering that the aviary and its shelter were a safe refuge, they made up their minds not to leave them, only the venturesome young birds continuing to fly in and out freely. Although we were never able to shoot it, the hawk discontinued its visits from the time I arrived and I set myself to making preparations for discouraging it or ending its career should it feel tempted to return. One quite useful method of discouragement is an effective scarecrow properly clothed, constructed,

and managed. The usual coat and hat on a stick left always in the same place are *quite* useless and even the shyest birds soon ignore them. To be of any real value a scarecrow must be decently dressed (!) ; its raiment, preferably showy, should be changed from time to time, as also, at fairly frequent intervals, should be its location, so that birds never come to accept it as an unvarying feature in the landscape. Most important of all is it that its face should have a pleasingly or unpleasingly human expression, for it is this particular feature which, more than any other, attracts the attention of birds and creates alarm.

With regard to methods of destroying the hawk, the gun is, of course, useful if the hawk's visits will only coincide with the periods which someone can devote to waiting for it. The only two effective hawk traps I know of are the pole-trap which is illegal, cruel, and likely to catch the wrong bird ; and the box-trap, on the model of what used to be known as Black's hawk-trap. This consists of a kind of large box of wire netting on a wooden frame. It has a false bottom divided from the upper part with wire netting and an open lid or top connected with a strong spring and a kind of perch inside the trap. In the bottom of the trap live sparrows are placed, in endeavouring to reach which by jumping on to an interior perch the hawk dislodges it and causes the spring to operate, bringing down the roof of the trap and leaving it a prisoner. The chief objection to a trap of this kind is that it is rather hard on the "bait", for *Passer domesticus* resents confinement so much more than other finch-like species that even I, who dislike him intensely, do not care to subject him to it for any length of time. In order to retain the advantages of the box-type of hawk-trap while eliminating the objections, I have invented an arrangement which, for its upper portion, has all the normal features, while the lower one consists of a roomy flight cage, or miniature aviary flight communicating with a comfortable shelter. In this small aviary I have put some Roller canaries which are very happy and contented in what are, for their kind, palatial quarters and which, should the hawk attempt an assault upon them cannot, of course, receive any injury.

The second round of young budgerigars which have now been flying for some weeks have provided an extremely lovely show as among them are some very attractive colours—opaline blues, lutinos, lemons, and rainbows. A lady visitor seeing them described it as "just like fairyland", a rather apt simile, for there is something close to Nature and yet unique and "unnatural" in its dainty beauty, in the spectacle at liberty of a small flock of graceful little birds, all of the same species yet of quite different and brilliant colours. Budgerigars, especially young birds a few weeks out of the nest, are particularly delightful in flight as they circle round and round like

domestic pigeons and frequently sweep by within a few feet of the observer. Those which are fully adult also, of course, make their contribution but, being less frisky and playful than the young and much taken up with domestic duties, they fly less frequently and continually, indulging for the most part in an early morning constitutional before returning to the aviary for the family duties of the day.

* * *

THE CAUSE AND CURE OF EYE-DISEASE

By P. H. HASTINGS (Portsmouth, England)

Having recently rejoined the Avicultural Society, I was very interested in the article by Dr. F. B. Lake on the Parrakeet Eye Disease. It appears to me by the description of the symptoms and drawings, identical with the condition found in a great number of freshly imported birds, especially insectivorous species.

For over thirty years I have been an importer of livestock from the tropics, specializing more in the insectivorous species than seed-eaters. During this period I would say that probably several thousands of birds have arrived with the disease in various stages. The Starling group appears to have a very large percentage with this complaint and another species in which it seems prevalent is the Pekin Robin.

In my early days it was my general practice, and I believe of other importers, painlessly to destroy the badly affected birds as no cure was known. However, about 1928 the manufacturing chemists with whom I was dealing for essential food ingredients, forwarded to me a copy of the book entitled *The Survey of Vitamins*, published by H.M. Medical Research Council in which there was an illustration of a rat suffering from this eye complaint and described as follows :—

The first symptom observed is a swelling of the eyelids which is followed by an inflamed condition of the conjunctiva. Hæmorrhagic and purulent discharges follow : the cornea becomes affected and ultimately blindness results. This seemed to me to be identical with the conditions I had observed in birds, and in this and subsequent publications, the disease is called Xerophthalmia and is proved beyond doubt to be the result of malnutrition, particularly and most conclusively in the lack of Vitamin A in the diet.

On the very day I read this paragraph, I received a rather large consignment of Starlings, and in the *Spreo* species particularly there were several very bad cases, and others with a more mild condition. I decided to put the information to a practical test. I isolated three cases which had very swollen eyes, almost as large as garden peas,

birds which in the normal way I would have destroyed at once. At about 4 p.m. I gave each bird three drops of best cod liver oil direct into the throat, and by about 8 p.m. there was a marked improvement in that the irritation seemed to have subsided, the birds discontinuing to rub their heads on the perch. I gave another three drops to each bird at about 10 p.m. that evening. The next morning, being very anxious to note improvement if any, I got up at 7 a.m., and went straight to the birdhouse. I was simply astounded at the result, all swelling had disappeared, the eyes were bright and full and there was no sign of the complaint other than the bareness around the eyes, caused by the continual rubbing.

Since then, as stated, I have had innumerable cases and in one particular consignment of Pekins I had about a hundred suffering with the complaint in various degrees, the worst I treated with a few drops into the beak, and the more mild cases were rapidly cured by normal feeding. In my whole experience since that first example of the cure, I cannot recall a single failure. In more recent years I have used Halibut Oil, as it is more potent, and a couple of drops into the beak will cure or rapidly cause a change for the better, the complete cure following with normal feeding with nutritious food. The rapid recovery of serious cases after the treatment has never failed to intrigue me.

In 1932 I wrote about this disease in the AVICULTURAL MAGAZINE and as a result of my article I was called in to the Hundridge Game Farm, at Hambledon, to treat seven pheasants which had the complaint. I gave a pen-filler to each bird direct into the beak. I was phoned the next day and informed that all birds were normal again and was thanked profusely.

I have also found this disease in mammals and quite recently I was asked to call at a neighbours to treat a young greyhound of fourteen weeks. It was explained to me that the dog had, it seemed, knocked its head and there was a great swelling; it had been taken to a vet and some lotion was given for bathing the swelling. I went along and directly I saw the condition I said, malnutrition. They looked askance, being kindly folk, and said they were feeding as instructed by the breeder. The left eye was completely closed, the head on that side being twice as large as it should be, the right eye was not so badly affected, and the skin around the left eye bare of fur by continual rubbing. I gave the dog three Halibut Oil capsules at 8 p.m., and left two more for the owner to give before retiring. As in the case of the birds, recovery was phenomenal, the next morning there being no sign of any disease, swelling wholly disappeared and the puppy lively and skipping about in play. Other than the general thinness of the puppy and the bareness around the eye, no one would have ever believed it was in such a state the previous evening.

It does not appear that Dr. Lake has treated this condition in parakeets as a vitamin deficiency disease. Should he have the opportunity of experimenting further, perhaps he will consider the treatment I have described. If any of our members have birds with such conditions, I would be pleased to endeavour to cure them, but I feel sure that if the treatment given above is carried out by any fancier, a cure will be effected and the chance of prolonged and painful suffering prevented.

I trust the information given will be instrumental in saving many birds the painful suffering caused by this affliction.

* * *

OBSERVATIONS ON CAPTIVE LANCEOLATED JAYS

By DEREK GOODWIN (Virginia Water, Surrey, England)

It was by merest chance that I first acquired this most delightful species. I was visiting a bird-dealer's in order to purchase some Glossy Starlings on behalf of a friend and whilst there could not refrain from looking round at his wares. Three Lanceolated Jays (*Garrulus lanceolatus*) at once attracted my attention. Two were sharing a cage and looking rather dejected, the third, caged alone, was in still worse plight, having one foot swollen to the size of a small crab-apple. On inquiry I was told that the latter would be sold to street traders who, so I gathered, make a weekly round of animal dealers and buy up cheap all the birds, puppies, etc., that are likely to die, for sale in the street markets on Sunday. As the dealer honestly admitted that he would only get a pound for the sick bird I paid over this sum and took it away, thinking that at least it would now be able to die unharassed.

Arrived home the crippled Jay ate mealworms eagerly and its death appeared less certain. I at once became the prey of conflicting impulses. On the one hand I had little cash and little spare aviary space (although shortly the loss of two young Magpies which joined up with a wild family and went off with them partly solved the latter problem), and so it would be folly to get more birds. On the other hand, would it not be cruel to keep the one Jay in solitude? and how much could I expect to learn of its behaviour from a solitary bird? Personal inclination thus rallied both science and sentiment to its aid, as it so often does, and the result was a foregone conclusion. The dealer agreed to sell the other two Jays for six pounds, in view of their poor condition, and even threw in a very excellent wicker travelling cage in which he dispatched them to me.

I was pleased to find that although somewhat thin, and in very scruffy plumage the two sound Jays did not appear to be sick in any way. I gave them plenty of mealworms, dug up a few cockchafer grubs for them on most days, added vitamin supplements to their soft-food (wholemeal sop), and gave them rather more meat than I would otherwise give a Jay. On this regime they soon showed vast improvement, although it was not until after the moult that they came into their full beauty of perfect plumage. It was early May when I got these birds. The crippled specimen became dominant over the other two and soon showed much improvement and its swollen foot went back to normal size, although incapable of use except as a "peg-leg". Actually, however, this would appear to have been just a dormant stage of the trouble afflicting it, as it died only fifteen months later.

In August, when the Jays were in moult, I acquired two more. These were picked out from six that a dealer had in a small outdoor aviary. Until that time I had had only a vague idea of the sex of my three birds but when the two newcomers were put in the aviary they at once took precedence over the original occupants, thus leading me to suspect, as later proved correct, that they were two cocks and the others all hens. They were colour-ringed and afterwards became known thereby : Green male, Yellow male, Red female, White female, and the Crippled hen. In December I acquired a sixth bird, which was given a blue ring and also turned out to be a hen.

Since nothing very exciting happened in the winter months I may here digress to give a brief description of this splendid bird for the benefit of those who do not know it. It is a smaller and more slightly built bird than our common Jay (*Garrulus glandarius*) with a proportionately longer tail and crest. It is a little larger than a Blue Jay (*Cyanocitta cristata*) and with rather similar pattern on wings and tail. The general body colour is a soft pinkish grey. The head and crest are black, the lanceolate throat feathers are white with black bases, those of the lower throat being black with white shaft-streaks, and those of the upper breast steel grey with white shaft-streaks. The wings and tail (when at rest) show mainly a soft, delicate blue, barred with black, the tail feathers and secondaries have black sub-terminal bands and broad white tips, and there is a white patch on the wing coverts. The bill is an odd greenish grey and the eyes dark brown. In its gait and skilful flight among branches this bird possibly excels our Common Jay in agility. When in good condition its plumage has a wonderful bloom comparable to that on a ripe plum or a really fit Java Sparrow (*Padda orizivora*). It may indeed be said of it, as Goldsmith said of the Swan, that "The eye wanders over it with insatiable pleasure and every part takes on a new grace with each new movement".

In its call-notes this species clearly shows its close relationship

to the Common Jay, the majority of its utterances being similar in sound and meaning. It is also an excellent and habitual mimic, and its soft warbling sub-song is composed largely of copied notes, as is the case with our bird. I have dealt elsewhere (Goodwin, 1952) more fully with a comparison of the voice and display of the two species.

By March the two male Jays, Green and Yellow, were giving their soft warbling sub-songs very frequently, and beginning also to indulge in somewhat louder mimicry. They uttered all sorts of bubbling, whistling, and mewing notes, some of them possibly imitations of various wild birds in their native Himalayas, although some, such as the calls of the Golden Pheasant, human whistling, and the whining bark of the next-door spaniel, had clearly been learnt since their capture. The females gave some whispering sub-song, but no loud and definite mimicry was established as coming from them. On 2nd March Green escaped, dashed off between the house and an outbuilding, and vanished somewhere in the front garden. I spent a fruitless and despairing few minutes vainly looking for him in near-by trees, but on returning to the aviary I found he had preceded me and was flying round trying to get back in. Needless to say I co-operated with his endeavours and he was soon safely under lock and key again.

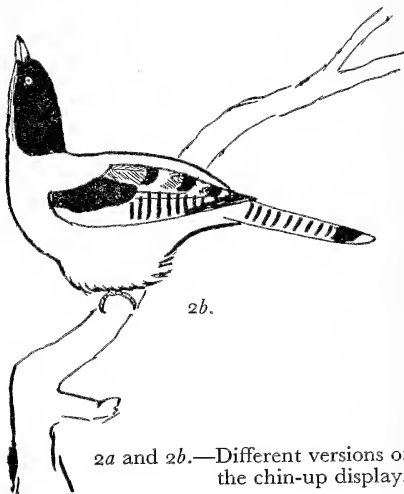
Courtship-feeding was first seen on 23rd March, when Yellow fed the Crippled hen and Green fed White. From then on it was frequent and usually initiated by the male. He would take some food, prepare it for swallowing, then, holding it in his throat, would commence to give the food-offering note—a long-drawn, husky version of the usual mewing appeal-call—and approach the female. She would usually respond before taking the food, by displaying with head held up and making little sideways movements, uttering soft “chip-chip-chip” notes. This display, which is also often given by the male before or after courtship-feeding, is essentially of a placatory or appeasing nature. It can be considered as, in a sense, the opposite of the male’s typical display, in which he erects his crest and most of the body-feathers and presents himself laterally, reaching forward on his perch and uttering a “display-phrase” which may consist of copied sounds. This display is used both towards the mate and towards rivals, and in the latter context is threatening in character. In the Common Jay both sexes use this display, but in the Lanceolated Jay I have only rarely seen it—at low intensity—given by a female.

From the end of March on the two male birds displayed extremely frequently, chiefly to each other, perching a foot apart and each making himself look as imposing as possible in an unsuccessful attempt to overawe his rival. It was noticeable that although Green still gave way to the dominant male Yellow at bath or food dish, yet when they were both in displaying mood he refused to be intimidated by him. When displaying the males usually uttered a soft, piping,

1.—Male in full intensity lateral display.



1.

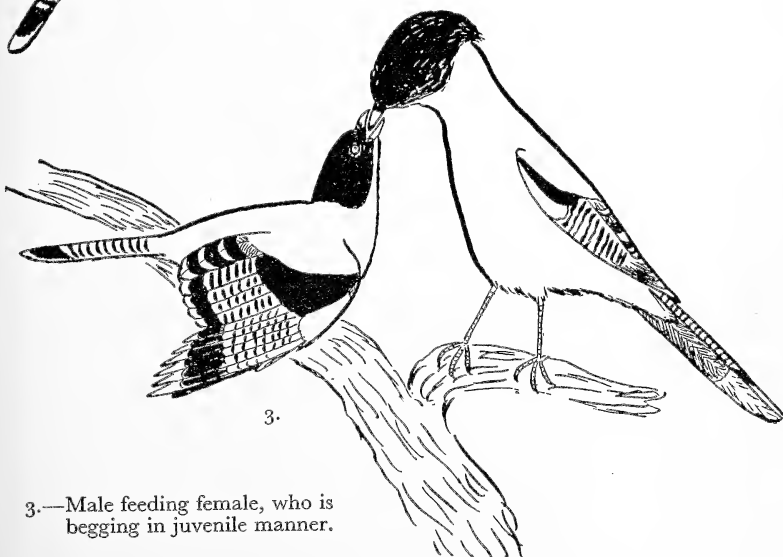


2b.

2a and 2b.—Different versions of the chin-up display.



2a.



3.

3.—Male feeding female, who is begging in juvenile manner.

sibilant "Tsee-tsee-tsee-up!" sometimes a loud, husky mewing note (probably homologous with the hissing sounds that male Common Jays usually incorporate in their display-phrases), and occasionally the "Kraah" note, or copied sounds. On one occasion when Yellow was in a state of intense angry excitement he displayed at Green screeching out a loud imitation of the "crow" of a cock Golden Pheasant. Green, as if not to be outdone, displayed back at him, barking loudly (imitation of a dog) as he did so.

On 17th April I separated the two pairs (the odd hens had been removed previously) and placed Green and White in an open aviary about 40 feet by 20, leaving Yellow and the Crippled hen in a smaller aviary about 28 by 9, with a shelter shed about 5 by 5 attached. Once the birds were separated the males displayed much less often and less intensely.

Within a couple of days I noticed that Green and his mate were taking much interest in the upper branches of a small apple tree which had been cut off and placed in a slanting position in one corner of the aviary. At 7 p.m. I fixed some wire netting in a fork about 7 feet high in such a way that a bowl-shaped support was formed. The male soon came back to the tree. Hopping about the branches he came on the artificial nest-site. He at once entered it, turning round and giving the soft chirruping notes. The hen flew to him, and perched on the edge, they chirruped and gave the "chin-up" display together. Green picked up and dropped nesting material shortly after, but he did not carry any to the nest-site till the following day. Thereafter he did some building each day. He appeared to have great difficulty in selecting suitable material. In a wild state this species is said to line its nest with the long black rhizoids of a fungus (Whistler, 1928) and although my birds finally achieved a beautiful nest from twigs, heather stems, rootlets, and coconut fibre the male at any rate would discard numberless pieces of material before finding one that suited him. For a long time little tangible result seemed to accrue from his efforts, but on the 30th April much more solid work was evidently done on the nest and it looked near completion. I suspect that the female did some building, as on the morning of 3rd May I found her on the nest at 7.40 a.m. She soon flew off, collected some fibres from the ground, flew to the nest-site, but seeing me looking flew off again. Otherwise she was never seen either with building material or at the nest during its construction. She gave the impression of being utterly disinterested in the male's building efforts, but if I went near the nest and looked at it she would "give the game away" by flying up to perch a foot or so away and screaming angrily at me. It was noticeable that when not building the male also kept away from the nest, although previous to its commencement both birds had been constantly in the tree that held it. From 3rd May the hen began to beg like a young bird, uttering the

juvenile version of the appeal call and (sometimes) fluttering her wings. She begged constantly, giving her pleading "childish" cry every twenty seconds or so, even continuing to do so when she was actually eating. Her mate was not thereby moved to feed her any more frequently than he had been doing for the past three weeks.

She went on the nest at about 6.15 a.m. on 5th May, and was still sitting when I left home at 7.45, but when I got back in the evening she was off the nest, which was empty. Next morning she again went on the nest. No eggs had been laid at 7.45 that morning when, unable to bear the suspense, I put her off the nest and felt in it. Presumably she laid later that morning, however, as she was sitting when I got home that evening and at 7 p.m. on 7th May there were two eggs in nest. Two more followed at daily intervals. The eggs were of no particularly beauty, being merely small editions of the eggs of the Common Jay in appearance.

For some days I was torn between a rational assumption that "the Powers that be" would never vouchsafe to me the luck to be the first person to breed this species, and an irrational optimism that I should in fact succeed in so doing. As day followed day and all seemed well, wild hopes began to get the upper hand of cold reason as, luckily for human peace of mind, they commonly do. The female sat on the nest continuously from the time the first egg was laid. She came off several times daily for periods of up to ten minutes—but usually much less—to exercise, bathe, and preen herself. The male fed her both on and off the nest, she received the food with juvenile notes and wing-flutterings. Often she would leave the nest immediately after having taken food from the male and whilst he was still at the nest. When this happened he never stayed to guard, much less to cover the eggs, but at once flew off after his mate.

On the fourteenth morning from the laying of the last egg I felt it must be a case of "any moment now". I was well prepared for the hoped-for happy events. I had a large stock of mealworms that had been fed, if not on the fat of the land at least in part on the fat of the sea (food treated with C.L.O.), and had also bought a supply of Kentish Glory caterpillars, the entomological dealers having had no cheaper and more mundane species for sale at that time. I may say I am well aware of the danger of presuming on the kindness of Fate, but when young birds are on the way one cannot abide by the wise adage "not to fill one's jar with water till one has caught a fish". On that morning I gave Green some insects and watched carefully when he fed White with them. She accepted them as usual, and did not look beneath her before swallowing them, so I gathered that even though the eggs might be chipped it was not likely that any were yet hatched.

When I returned that evening the first thing I noticed was White off the nest. My heart sank. I guessed instantly what had happened.

Then I tried to believe that she was only off for exercise, she would soon go back. Needless to say she did nothing of the kind, and the nest, on inspection, proved to be empty, and clean as the proverbial whistle.

Presumably the birds, or more probably only the female, had eaten the hatching eggs, or new-hatched young. This behaviour is known to happen not rarely with insect-eating birds in captivity and I have strong grounds for suspecting that it may occasionally occur in the wild. It is due not I think to the bird's reproductive urge suddenly dying away (which would result in the nestlings being treated as any other small creature), but rather to a hypertrophy or perversion of the strong instinct which such birds show to keep the nest clean by eating all extraneous objects (eggshells, fæces, fallen leaves, etc.), that appear in it. Probably this only happens when some disturbing influence has upset the sitting bird. In the case of these Jays there was a loud and noisy party in the adjoining garden on the fateful day and this may have disturbed them.

The behaviour of the pair that evening showed that they were in some mental stress. Both, but especially the male, kept returning to the nest and looking into it as if they could not convince themselves that it was really empty. When I went near the nest the female came dashing up and scolded at me just as she had before. Quite clearly she did not in any way correlate her eating of the eggs with their mysterious disappearance! She begged constantly to her mate, but Green, instead of feeding her, snapped at her angrily and sometimes even attacked her. This was not, of course, because he thought that she was responsible for the loss of the eggs (as no doubt she was) but simply that his bereavement had put him in an aggressive mood, and it needed only slight stimulus for him to vent his feelings on his mate in default of any other victim. Homologous behaviour in other bipeds is, of course, not uncommon.

Next morning the pair had got over their loss and the male was once more feeding his mate solicitously. He was still in breeding condition and within a few days was building a second nest in a basket fixed in a tree at the opposite end of the aviary. White, to my dismay, showed no interest whatever in the new nest. She ceased to beg in juvenile manner and showed less enthusiasm for courtship-feeding. A day or two later, as she was preening, a tail feather came away in her bill. She held it for a second or two with that puzzled "Good God! am I falling to pieces?" expression which Jays often show when this happens, and I knew that all chance of her breeding again that year was gone.

Whilst all this had been going on Yellow and his mate the Crippled hen had, up to a point, shown similar behaviour. This female never showed the slightest signs of wishing to nest but she had commenced

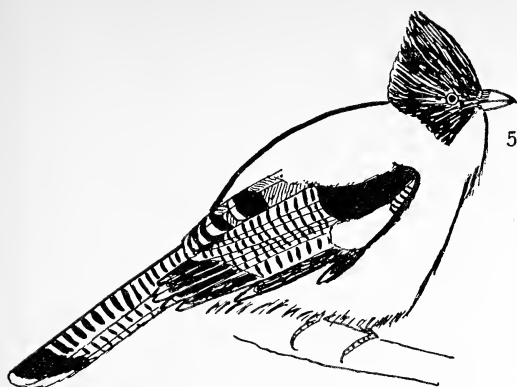
to beg in juvenile manner at the same time as White had done. Although this begging coincided with the breeding season I think it may not have been caused by the reproductive drive. This bird gradually wasted away until she died in August and it seems possible that her illness induced in her a similar psychological mood of "dependence" to that normally aroused in an incubating female. Infantile behaviour (or perhaps one should rather say behaviour that is normally shown most strongly in infancy) by adult animals that are in a weak state through hunger or sickness is not infrequent, one need look no further than man and the domestic Pigeon to see examples of it. The male Yellow frequently carried nesting material about the aviary and deposited some of it in an artificial site inside the shelter, where perhaps he would have nested had his mate shown a reciprocal interest. I must confess that I made very few observations on the two females Blue and Red during this time, so I am not sure if they showed any breeding behaviour. They certainly did not pair together.

On 10th June, in the early evening, I put the other four birds into the large aviary with Green and White. These two showed some aggression towards the newcomers, displaying at them and attacking them, but they were not systematic or persistent about it and soon ceased to do so. Next morning Yellow displayed near Green's first nest-site, and the female Blue, who was near, at once responded with the chin-up display. Green, observing this, flew up, drove off Yellow, and went into display himself. Blue, acting on the proverb about the brave and the fair, then displayed submissively to him. He hopped into the nest site and pecked (? low-intensity building movement) at a twig. Blue at once showed great excitement, she hopped to the edge of the site, gave most intense versions of the chin-up display and quivered her tail violently. Green did not respond, however, but remained "true" to his old mate. Within a few weeks all were in moult and all hopes of breeding from them that year were over. They are now (12th February, 1953) showing signs of awakening sexual activity once more, and I live in hope, though hardly in expectation, that I shall have better luck with them in 1953.

So far as one can judge from what has been written about this bird its habits in freedom (Ali, 1949 ; Whistler, 1928) would appear to be very similar to those of the Common Jay. Its movements are very similar and it has the same manner of commonly hopping about with the tail slightly raised and the tips of both wings lying on the same side of the tail, which gives it a very jaunty appearance. It hides surplus food—especially nuts and acorns—in the same way, pushing it into the ground and then carefully covering it up or else sticking it into some crevice or hole above the ground. It remembers where it has hidden its booty and in a wild state probably relies largely on previously hidden acorns for its winter food.

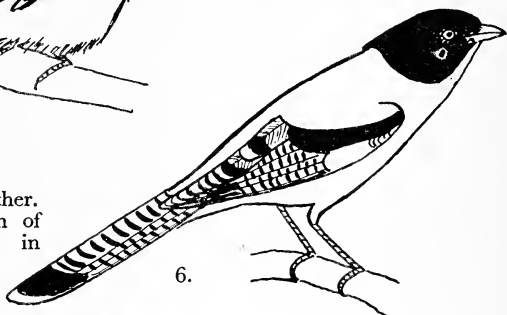
My Lanceolated Jays are fond of sun-bathing which they do—usually on the ground—in the typical passerine manner. The bird leans over to one side with feathers fluffed out, crest erect, and commonly with wing and tail on side nearest the sun somewhat spread. Bathing, preening, and scratching are also performed in the typical passerine manner. At night my birds roost well hidden in the foliage of *Cupressus* trees, or in conifer branches fixed in the aviary. They go to roost early (unless some alarm or excitement at the normal roosting time inhibits them from so doing) whilst it is still perfectly light and once on their roosting perches do not come off again that evening unless greatly disturbed. Even giving mealworms to a companion still up will seldom induce a roosting bird to come out, although if in such a case it is deliberately driven out it will at once commence to feed readily. Doubtless this behaviour has protective value in the wild state by rendering the roosting bird less liable to be discovered by owls or other crepuscular or nocturnal enemies.

In captivity I have found this bird as hardy and easy to cater for as the Common Jay. Many bird-keepers, scientists and laymen alike, seem to find difficulty in keeping Jays in good condition. Primarily I think this is because they often try to feed them on horrible mixtures of ground-up dog biscuit, eked out with lumps of horsemeat, and with the addition of chopped-up root vegetables more suitable for cows than for corvids. Such a diet may suit Crows and Ravens (at any rate in zoos where they obtain all sorts of extras from the public) fairly well, but I have never known a Jay to thrive on such a regime. For these birds a variety of foods is necessary (though no doubt if their exact food requirements were fully known a suitable artificial food could be concocted). Acorns, which are appreciated just as much when sprouting as when fresh, form an excellent staple as long as they can be obtained, and with a little trouble the Jay-keeper should be able to lay in a stock in autumn to last him till February or March. At other times wholemeal sop, dry wholemeal bread, chestnuts, peanuts, etc., can make up the bulk of the food (and should be used to vary it even when acorns are plentiful). This should be varied with any insects obtainable, small pieces of meat (horse or otherwise, cooked or raw), cooked (scrambled) egg, and cheese. These extras are best fed by hand and only as much as the birds will swallow on the spot, as owing to the amount of dirt that will adhere to them it is not desirable that they should be hidden for future consumption which they otherwise will be. For the oft maligned mealworm I have nothing but praise. Doubtless if they are inadequately fed they do not contain sufficient vitamins, but I cannot help thinking that much of the objection to them arises from that puritan streak that makes some people think that anything that a creature—be it man or bird—obviously delights in *must* be bad for it. I try to give all my Jays a feed of mealworms



5.—Active bird in cold weather. Note slightly spread wing showing first and second primaries.

6.—Active bird in warm weather. A similar sleeking down of the plumage is shown in uninhibited fear.



6.



7.

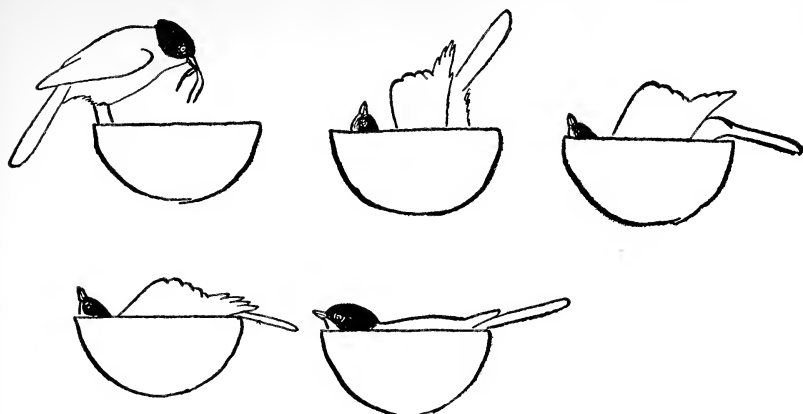


7.—Sun-bathing postures, side and front views.

at least once or twice a week—more often when they are moulting—and if I were wealthier I would certainly give them a larger supply of these insects. Among the many wild insects that Jays relish may be mentioned cockchafers which, during the few May-days that they are on the wing, may be caught in numbers clinging about the street lamps after dark. Lay observers of the aviculturist capturing them are, however, apt to think that he is either mad, drunk, or attempting to sabotage the lighting system. Jays are fond of fruit, oranges and apples are best liked and cheapest, they do not like soft fruits enough to warrant the price, although if one grows one's own they can be given. Elderberries are the only wild fruit they seem keen on. Needless to say one must use one's intelligence in feeding, add vitamin supplements to the soft food if considered necessary and allow plenty of animal food to growing young birds (these cannot at first digest nuts or acorns) and recently purchased adults that are thin and run down. Leafmould (the top surface layer from woodland) makes an excellent floor covering for Jays and gives them ample scope for food burying. In large aviaries natural turf looks nice, but is apt to grow so long that the Jays will seldom descend into it. I sprinkle plenty of powdered lime about before putting down fresh leafmould, and put lime frequently under roosting perches and elsewhere where the ground is likely to be much fouled.

Plenty of fresh water for bathing and drinking must always be available. Anting is another instinctive impulse which should be catered for, though few aviculturists give their birds the opportunity to indulge it. A sack of wood-ants (just shovel nest, ants, and all into a sack) tipped out on the floor of the aviary every three weeks or so in summer will provide a most interesting spectacle for their owner as well as gratifying the birds. It is of interest that the Lanceolated Jay acts in the usual manner, picking up the ants in its bill and bringing forward one wing at a time, whereas the Common Jay brings forward both wings at a time with a peculiar shuddering movement, spreads them widely with the primaries brushing the ground and does not pick up ants in its bill, although it makes head movements that look at a distance as if it is doing so.

Note.—The sketches illustrating this article are only intended to give a general idea of some characteristic postures. No attempt has been made at accuracy of fine detail. The discerning will, for instance, note a regrettable discrepancy in the number of tail bars in the different drawings, and if they want to know how many the bird in fact possesses I fear they must visit their nearest museum and look at a stuffed one!



4.—Male nest-building.

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AN INCIDENT CONCERNING THE PERUVIAN TORRENT DUCK

By STANTON PHILLIPS (Long Beach, California, U.S.A.)

A correct interpretation of the actions of any waterfowl as little known as the Peruvian Torrent Duck is difficult. This is particularly true when the bird involved demonstrates an apparently large variety of behaviour patterns. With this in mind I submit the following observation :—

It was originally my intention in going to Peru to capture and keep in captivity the Peruvian Torrent Duck. In pursuit of this end a group was formed in Lima consisting of Dr. Ortiz de la Puente, Director of the birds and mammals section of the Javier Prado Museum of Natural History ; Mr. Luis Riva, engineer and amateur ornithologist ; and myself.

Reaching Yacca, a hacienda at 2,500 metres on the Rio Canete, we established camp. The river was swollen as are most Andean streams during the month of January and, since this made the use of our nets impracticable, we contented ourselves with whatever observations were possible. Mr. Riva and I were walking on a small hill downstream when, at a distance of approximately 500 feet before us, we saw a mature drake poised motionless on a jutting midstream rock. We seated ourselves, focused binoculars, and waited. With great dignity it bowed deeply, at the same time pushing the tip of its tail upward to a height exceeding that of its vertically extended neck and head. The entire action appeared to be pendulum-like with the feet serving as inverted fulcrums. After each such four or five second performance, it would resume its usual stance which was marked only by an occasional turn of the head. It would then advance 6 to 12 inches and perform again. With about fifteen of these completed it had reached the end of the rock and abruptly flew cross-stream into the less torrential side waters. Here it disappeared.

Our temptation to believe that we were the objects of the display was somewhat dispelled when, after arriving within 50 feet of the rock, we discovered a mature female standing on a portion of the rock where our original point of observation made such discovery impossible. We observed her for about ten minutes and, although she could see our every movement, she gave no sign of fear. She finally and leisurely slipped into the water and floated downstream.

The stimulating agent for the drake's conduct could be anything, of course, including the aforementioned female, ourselves, a twig in the throat, or maybe another female. It was probably the latter.



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QUETZELS IN AVIARY IN LOUISE BIRD HALL, WASSENAAR ZOO.

THE LOUISE BIRD HALL AT WASSENAAR ZOO

By G. DE GOEDEREN (Amsterdam, Holland)

In the January–February number of the AVICULTURAL MAGAZINE I was already able to lift the edge of the curtain concerning the Louise Hall, the new birdhouse of Wassenaar Zoo. When this article appears the Louise Hall will be open and I would like to take my readers for a walk through this new building.

When entering the birdhouse we are at once confronted with the large centre aviaries which are approximately 30 feet long and wide and about 14 feet high. All of them are planted with various types of vegetation which is gradually changing. The first aviary contains a marvellous pair of Lesser Birds of Paradise which in this large enclosure can freely use their power of flight. It is a very beautiful sight indeed to see these birds, but imagine the sight of half a dozen fully feathered Quetzals flying in all their beauty in the tree-tops of the next aviary! Dierenpark "Wassenaar" was one of the first zoos that ever had Quetzals in its collection, but one must see these beautiful birds here in quite natural surroundings fully to grasp their beauty.

The next centre aviary contains quite a number of species of Touracos, among which there are a Senegal Violet Plantain-eater (*Musophaga violacea*), some White-breasted Touracos (*Corythaixoides leucogaster*) (labelled Touraco *Gymnoschizorhis personata*), and Guinea Touracos (*Turacus persa*). Victoria Crowned Pigeons, together with Indian Blue Rollers and Cotton Teal inhabit the next enclosure. Knot-willows are the favourite resting-place of the Rollers, in their beautiful flight range above the Pigeons and Teal, which are chiefly confined to the lower part. A small pond extends into a creek in the next aviary, where the vegetation gives the impression of a swamp and where various species of Plover-like birds and Rallidae are to be seen with various Fruit Pigeons and other colourful birds in the tree-tops. Trumpeters, Red-billed Curassows, Piping Crows, and various smaller Hornbills are found in the aviaries. Stretching along both sides of the birdhouse are forty-eight smaller aviaries, generally about 5 feet wide and 10 feet long, in which we find a great number of very rare species. There are both the Scarlet Cock-of-the-Rock and the normal Cock-of-the-Rock, both in splendid condition, Red (*Paradisea rubra*), Wilson's (*Schlegelia wilsonii*), King, and Magnificent Birds of Paradise, European Bee-eaters, various Toucans and Toucanets, Indian Sunbirds, Humming Birds, numerous Tanagers, and an impressive collection of Lories and Lorikeets as well as Australian parrakeets.

It would be too much to give separately the names of all these species, but I cannot remember ever having seen a more complete

collection. Needless to say that these smaller aviaries are planted with various bushes and flowers (except, of course, those that contain parrot-like birds), and in doing so the utmost care was taken to consider the biological needs of the birds.

In addition to these larger enclosures approximately forty smaller cages are reserved for single birds, most of them parrots. Among them Golden Conures, Hawk-headed Parrots, Crimson-breasted Conures (*Pyrrhura rhodogaster*), and Levaillant's Barbets.

At the farthest side of the birdhouse the vegetation of the central aviaries is gradually replaced by towering rocks containing some large aquaria for cold water fish and at the same time concealing a bird kitchen and food store. There is also a modern hospital room with laboratory.

The former birdhouse is now being rebuilt and will chiefly contain the larger species of parrots, such as the rare Kea (*Nestor notabilis*), Funereal, Gang-gang, Leadbeater's Cockatoos, Macaws, etc.

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PHEASANT KEEPING IN SWAZILAND

By Major H. R. HENDY (Mbabana, Swaziland, S. Africa)

I have travelled in most parts of the world, but in my opinion Swaziland surpasses them all in climate and scenic beauty. Frost is very rare indeed, and though in the summer it inclines to be warm, the evenings are always cool. The climate is most suitable for the rearing of birds, especially Pheasants. Of these I have a large collection, amounting at the present time to twenty species. These include Monals, Brown and Blue Eared Manchurians, Versicolors, Germain's Peacocks, Blacknecks, Mongolians, Chinese, Melanistic Mutants, Whites, Goldens, Silvers, Lady Amherst's, Elliot's, Cheers, Nepal Kaleegs, Swinhoes, Siamese Firebacks, and Reeves's. I should very much like to have Tragopans and other species of Firebacks.

To look after my Pheasants and other birds which I shall mention later, I have five native boys under an Induna or headboy, and it is a constant daily task to supervise them and keep things clean and sanitary. I must, however, go at least once a month to Johannesburg which is 235 miles away where is my business and where I must stay for periods ranging from a few days to two weeks. On account of these necessary absences I have at times lost valuable stock. Without my business, however, I could not afford what in South Africa is an expensive hobby. It has the added advantage that it prevents me growing old too quickly. I do not know what I would do without it, and one of my greatest joys is to receive letters from different parts of the world where I have written to for rare birds, from Singapore,

for instance, whence may come the fabulous Argus Pheasant. Yet when I return from Johannesburg I invariably find I have lost birds due to the inability of the native boys ever to discern signs of sickness or that a bird is off its feed.

Once a week every pen and house, and I have over a hundred, is sprayed with D.D.T., and every day without exception every pen is raked and cleaned of all manure and stale food. During the breeding season I employ a small boy or Unfaam to do nothing else but walk round all the pens and collect the eggs, for egg-eating can become a serious habit, and this is the only way I know to prevent it. Every egg is marked with the number of the pen and the date, and is then stamped with the name of the species of Pheasant. To hatch these eggs I have built two large circular pens, each containing twelve smaller pens, each consisting of a small house and run. I put the broodies in these smaller pens for a couple of nights to make sure they want to sit, and I then place the Pheasant eggs under them. I use as broodies White Silkies, Light Sussex, and good old Kaffir hens, which are always going broody, and which are of all colours, shapes, and sizes, having been bred by the natives for many generations. I make sure they are free of any disease.

A complete record is kept of all the eggs under each hen, and the day they are due to hatch out. The moment the chicks are hatched, they are whisked away to brooders, all of which have an enclosed outdoor run. These brooders are paraffin-heated, as the electric supply here is uncertain, especially during the severe lightning storms which we have. At the height of the breeding season I have as many as forty or fifty hens sitting at one time. The overflow from the round pens is accommodated in nests specially built in a large room.

Feeding presents a problem. We have no balanced ration especially made by manufacturers for Pheasants. We can obtain a balanced ration for poultry, but it does not contain ingredients essential for Pheasants. Fortunately, however, my property is surrounded by hundreds of ant heaps, so I can give my newly-born chicks plenty of ants and their eggs. They just eat these by the thousand, and thrive wonderfully, and this is all they eat for the first few days. They always have biscuit meal mixed with raw liver, calcium, Vetemul (Vitamin A and D), egg custard, and the yolk of hard boiled egg. In addition they get finely-chopped lettuce. After four weeks I give them the balanced poultry chick mash to which I add buck wheat, Kaffir corn, wheat, millet, and barley. The ants, however, seem to remain their favourite food until they are weaned and placed in the larger outdoor pens.

I pinion most birds at about six weeks old.

This last season I tried the experiment of selling some Pheasant eggs to encourage other breeders in South Africa. Unfortunately it was

not an outstanding success due to the rough handling of the packages by the postal authorities. The eggs arrived intact, but the airsacs seem to have been damaged and consequently few eggs hatched.

The question might be asked whether in view of the ideal weather conditions, birds could not be bred on a large scale for shooting, but this has been tried on several occasions only to end in dismal failure. This was due for the most part to the many vermin we have in South Africa. Meercats, leopards and hawks kill off the young stock before they have a chance to become acclimatized. There is also the difficulty of obtaining sufficient cover for the birds when they are released. The experiment has been tried in the Cape, Natal, and elsewhere without success.

Besides the Pheasants I have a varied collection of other larger birds. I have Kenya Crested Cranes, Stanley Cranes, Sarus Cranes, Demoiselle and Lilford Cranes, White, Black, and Black-necked Swans, Flamingoes, Curassows, and Toucans from Brazil. I have all types of Guinea-fowl, including the beautiful Vulturine, which is breeding well. Then there is the Secretary Bird which is fed every morning with a large juicy rat. The Australian Brush Turkey and the Chukar Partridge are also included in my collection, but I have not been successful with the latter, and need some new blood.

I also have African Spurwing, Egyptian, Barnicle, Siberian, Red-Breasted, Australian Cereopsis and White-fronted Geese, and I have among ducks the European Sheld, the South African Sheld, the rare South African Black Duck, Mallards, and, of course, the lovely Carolinas and Mandarins. I have, too, Peacocks and a recently imported pair of White Peacocks which have already bred. I have thus a varied assortment, and undoubtedly the largest and most comprehensive collection in South Africa. I cannot say I am successful in breeding them all.

All the birds, with the exception of those in the Pheasant breeding pens, are kept in large paddocks which I have landscaped with trees, green grass, and where necessary small ponds or dams with running water. The many paddocks are so arranged as to harmonize with the gardens around my house. There are not a lot of unsightly fences, except where absolutely necessary and then these are covered with the prolific Grenadilla Vine. Our rainfall is 56 inches, so gardens are possible the year round.

At times, however, when I want to sit quietly and think over my past misdeeds, I can sit in a large greenhouse which I recently imported from England and look at my begonias and gloxinias, and other beautiful hothouse flowers, and through the doorway I can see the Cranes dancing their afternoon dances, and when the Sarus Cranes start the same antics, one cannot but be amused at the ungainly way in which they imitate the graceful Stanley.

OBITUARIES

THE MARQUESS HACHISUKA

Masauji, eighteenth Marquess Hachisuka, Ph.D., Sc.D., died suddenly of a heart ailment on 14th May, 1953, at his home at Atami, Japan, at the age of 50. He appeared to be in such good health that his untimely demise was quite unexpected.

Marquess Hachisuka will be greatly missed all over the world. He was born and first educated in Japan until, at the age of 19, he came to Europe to complete his training in the Western way. The writer can remember when he first met him, in Paris in 1922. Prince N. Takatsukasa, then staying in France, was to dine at our house on a certain day, when he asked if he could bring a young relative of his just arrived from Japan. He then introduced Masauji Hachisuka. Under the guidance of Baron Hayashi, the Japanese Ambassador in London and a friend of his father, Vice-President of the Japanese House of Peers, he pursued zoological studies at Cambridge University during the next five years, finally graduating before he returned to Japan, through America in 1927, in company with the writer. The colourful welcome given to him by the aristocracy and the officials of Japan, headed by his father and his uncle, Prince Tokugawa, the last Shogun, still remains vivid in my memory. We later travelled together to Korea and China; he conducted an expedition to the Philippines in 1928-9 but he soon returned to Europe, where he stayed until 1934. He had previously travelled a good deal in Europe and North Africa, and went to the Belgian Congo with the late Jean-Marie Derscheid; he also paid a lengthy visit to the King and Queen of Bulgaria.

During all these years Hachisuka was one of our inner circle of European bird-friends. He attended meetings and conventions regularly in England, France, and elsewhere. Whilst travelling back to Japan through the United States he fell seriously ill at Los Angeles and remained there for four years, during which he completely recovered. The writer spent several months with him in 1936-7 at Pasadena and has never seen him again since. In the course of these years spent in California, he had made many close friends there.

Hachisuka returned to Japan in 1938, on his father's death, and he soon married Chiye Nagamini, of Los Angeles. They had a daughter, now being educated in California.

The war period was difficult for him because of his Western ways and friendships. After peace was restored, his wealth greatly diminished, he lived quietly at Atami, where he had built a Moorish-styled house to his own liking, again surrounded himself with birds, resumed his studies, and carried on an assiduous correspondence with his old friends in America and in Europe. His unexpectedly early death is a great shock to them.

Hachisuka was a true lover of birds, live birds in freedom and captivity, as well as museum specimens. As an aviculturist he kept and raised many species in Japan, particularly pheasants. He collected bird skins extensively in the Philippines and elsewhere, and also acquired private collections. Most of his early work on birds was done in the museum at Tring and in London.

His publications were very numerous. Besides many articles and notes in the *Avicultural Magazine*, *L'Oiseau*, the *Ibis*, the *B.O.C. Bulletin*, *Tori*, and other periodicals, he had written books on the birds of Egypt, Iceland, the Philippines, Hainan, Formosa, and a treatise on bird variation. His splendid book on *The Dodo and Kindred Birds* has just come out, but he never saw it. He had been working lately on a book of birds of China.

Although Marquess Hachisuka had been unwillingly separated from his Western friends during the last fifteen years his memory has remained vivid in their minds, as well as their affection for him.

J. D.

* * *

MADAME E. LÉCALLIER

Mme. E. Lécallier has recently died in Brittany in her 74th year. Many of our members will remember her and her huge collection of birds which she kept at Chateau de la Villette and in other gardens around Elbeuf, in Normandy, between 1920 and 1940. Besides a number of park animals (Blackbucks, Muntjacs, Wallabies, etc.) and birds (Cranes, Rheas, Emus, waterfowl and screamers, game-birds), she possessed hundreds of rare parrakeets, doves, and small birds of all sorts in row upon row of roomy and practical aviaries, and in several large bird rooms. She was exceedingly successful in breeding many rare species, a number for the first time in captivity, as well as more ordinary ones. Accounts of her achievements are found in our Magazine and in *L'Oiseau*. The remnants of her collection were wiped out by the 1940 invasion and she had since lived with one or the other of her numerous children in Normandy and in Brittany. She had missed her birds greatly.

The writer had long been a close friend and neighbour of hers and we passed many happy hours discussing birds and visiting each other's aviaries.

With Mme. Lécallier one of the great bird collectors of the between-war era has disappeared and her friends feel her loss deeply.

J. D.

* * *

LONDON ZOO NOTES

BY JOHN YEALLAND

Five of the birds received during the past two months are new to the collection. They are a Ceylonese Hornbill (*Tockus griseus gingalensis*) ; a South African Grey Hornbill (*Tockus nasutus epirhinus*) ; a Black-spotted Hangnest (*Icterus pectoralis*) ; a Malayan Green-billed Malkoha (*Rhopodytes tristis longicaudata*), and a Kenya Eagle-Owl (*Bubo capensis mackinderi*).

Two Blue Jays (*Cyanocitta cristata*) ; a pair of American Robins—or Migratory Thrushes (*Turdus migratorius*)—and a Wood Thrush (*Hylocichla mustelina*) have been presented by New York Zoological Society.

The Migratory Thrushes nested soon after arrival and a fine young bird has already left the nest. The Wood Thrush, a tame and charming bird very like the Song Thrush but considerably smaller, also laid but had no mate.

Two Lidth's Jays (*Lalocitta lidthi*), of which a coloured plate appeared in the Magazine during 1936, and two Soemmerring's Copper Pheasants (*Syrnaticus soemmerringi*) were presented by Veno Zoological Gardens, Tokyo ; two Sharp-winged Teal (*Anas flavirostris oxypterus*) by the Severn Wildfowl Trust ; and a Short-eared Owl (*Asio flammeus*) by Professor Pumphrey, thus completing the collection of British nesting owls.

Mr. Hawke sent a gift from Lourenco Marques of the South African Grey Hornbill already mentioned ; a pair of Levaillant's Barbets (*Trachyphonus vaillanti*) ; a pair of Fiscal Shrikes (*Fiscus collaris*) ; a Red-backed Shrike (*Lanius collurio*), and a Delalande's Green Pigeon (*Treron delalandii*). Mr. Trevor Crewes presented a Japanese Blue Flycatcher (*Cyanoptila cyanomelaena*) ; Mr. A. V. Griffiths a pair of Bobolinks (*Dolichonyx oryzivorus*) ; Mr. W. T. Dring a Blue Grosbeak (*Guiraca caerulea*), and Mr. J. Frodsham a Sulphur and White-breasted Toucan (*Ramphastos vitellinus*). Other interesting presentations include a Timneh Parrot (*Psittacus erithacus timneh*), and a Yellow-fronted Parrot (*Amazona ochrocephala*).

Three Ruby-crested Humming-birds (*Chrysolampis mosquitos*) ; two Stripe-breasted Star-throats (*Helimaster squamosus*) ; a Lazuli Bunting (*Passerina amoena*) ; a White Stork (*Ciconia ciconia*) ; a Golden Eagle (*Aquila chrysaetus*), and a young Cassowary believed to be Salvadori's (*Casuarus bicarunculatus tricarunculatus*) have been purchased. Capt. Knight's famous Golden Eagle, "Mr. Ramshaw," has been deposited, and a Purple-capped Lory (*Domicella domicella*) and two Violet-necked Lories (*Eos variegata*) have been received in exchange.

A Schlegel's or Blue-headed Dove (*Calopelia puella*) ; a Silver Gull (*Larus novae-hollandiae*) ; twelve Red-crested Pochards ; a Chilean Teal \times Carolina ; two Grey Lag ; one Egyptian, and one

Upland Goose have been bred, together with a number of the more common pheasants.

The Lesser Black-backed and the Herring Gulls are considered by some ornithologists to be colour phases of the same bird, so two chicks of this "cross" bred here in the Southern Aviary are being ringed and it will be interesting to see their adult coloration.

The mother of last year's King Penguin chick has laid again and the Snowy Owls have eight eggs. The female Alpine Chough laid one egg and then died as a result of an egg broken in the oviduct; the eggs of the Common or Cornish Choughs were again infertile, as were those of the Rheas.

A Gang-gang Cockatoo has died, from senility, after being in the collection for twenty-six years; a Bengal Red-vented Bulbul after fifteen years; and a Purple-headed Glossy Starling after twelve years. These longevity records are interesting, but it is not often that one knows the age of a bird at the time of its arrival.

* * *

XI INTERNATIONAL ORNITHOLOGICAL CONGRESS

The 11th International Ornithological Congress, presided over by Sir Landsborough Thomson, London, will be held in Basel (Switzerland) from 29th May to 5th June, 1954.

During the week of the Congress, five days will be devoted to meetings and two to excursions. Before and after the Congress (25th-28th May and 7th-19th June) excursions will be arranged to enable members to become acquainted with the Swiss avifauna, especially of the Alps and Lower Alps. The Congress fee is 30 Swiss francs.

The prospectus, containing registration form and detailed informations, will be distributed this summer. Applications to attend, and to contribute scientific papers, should be sent in before 28th February, 1954, and addressed to: XI International Ornithological Congress, Zoological Garden, Basel, Switzerland, which is at disposal for any inquiries needed.

* * *

BRITISH AVICULTURISTS' CLUB

Meetings and dinners during the 1953-4 session have been arranged for the following dates :—

9th September, 1953
 11th November, 1953
 13th January, 1954
 10th March, 1954

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

In the combined Coronation and Queen's Birthday Honours' List Peter Scott was appointed C.B.E. Three members of the staff of the Zoological Society of London, well known to many of our members, were also honoured : M.B.E.—G. B. Stratton, Librarian ; B.E.M.—W. Lawrence, Prosectorium, and E. Tanner, Overseer, Birds.

* * *

C. af Enehjelm now writes : " On 18th May I had a young Black-crested Finch (*Lophospingus pusillus*) out of the nest in my private bird-room. I have one nest of seven *Forpus passerinus* (four have already left the nest) and one nest of two (one out). The parents of the latter are my original cock and a grand-daughter."

* * *

D. W. Bowles, Director-Secretary, Royal Zoological Society of Scotland, reports of the Penguins at the Zoological Park, Edinburgh, during 1952 : " In addition to the five King Penguin and two Maccaroni chicks reared, one of the Ringed species was also successfully reared and is now in its adult plumage. It is believed to be the first time that this species has been successfully bred in captivity anywhere."

* * *

Dr. Alan Lendon writes that he now expects to arrive in England by air about 10th August. Part of his letter makes melancholy reading. Owing to the fact that his leisure is constantly shrinking he has found it necessary to dispose of the major portion of his superb collection of parrots and parrakeets, and the Doctor very much doubts that he will be able to indulge in aviculture to anything like the same extent in the future. This is certainly a sad thought after such a long session of bird-keeping on the grand scale.

About 100 members and friends accepted the invitation of Mr. and Mrs. Ezra to visit Foxwarren Park on 30th May, 1953. The morning was showery, but the weather was fine and bright during the afternoon and visitors were able to tour the grounds and aviaries in comfort. Due to the late season the rhododendrons and azaleas were in full bloom—a truly magnificent sight. The President's Garden Party is, of course, the principal event in the Society's year and is eagerly looked forward to by members: once more they are indebted for a very pleasant afternoon spent in perfect surroundings.

* * *

The indefatigable Wilfred Frost brought home yet another collection early in June. Inclement weather throughout the Far East precluded trapping by any of the usual methods: the collection, in the main, being made up by already captured birds purchased from the natives.

Included were 5 Cassowaries, 8 Crowned Pigeons, 16 Nutmeg Pigeons, 3 Plicated Hornbills, 1 Small Grey Ceylon Hornbill; Mynahs, 2 Nias Island, 2 Sunda Island, 2 Bali; 1 Green-billed Cuckoo, 1 Large-billed Blue-winged Pitta, 5 Golden-crowned Bulbuls; Lories, 6 Purple-capped, 4 Black-capped, 4 Black, 4 Ceram, 2 Red, 2 Black-winged; Lorikeets, 5 Forsten's, 5 Ornate, 3 Violet-necked; Parrakeets, 4 Ceylon Blossom-headed, 2 Layard's, 1 Moustache.

* * *

The Hon. Treasurer recommends members living abroad to pay their subscriptions by money order. It is, however, *most* important to notify him of such payments. In many cases the name of remitter does not appear on the money order, with the result that there is usually a number of "unidentified" orders in hand. It thus sometimes happens that a request for payment of subscription is sent to a member who has already paid by this method but omitted to notify the Hon. Treasurer at the time.

* * *

WATERFOWL RINGING SCHEME—DETAILS OF RECOVERIES

<i>Date ringed.</i>	<i>Species.</i>	<i>Ringed by.</i>	<i>Date recovered.</i>	<i>Place where recovered.</i>
7.8.1950	Gadwall	Peter Scott	2.2.1953	Frisian coast, near the enclosing dam.

A. A. P.

* * *

REVIEWS

RECORDS OF PARROTS BRED IN CAPTIVITY. By ARTHUR A. PRESTWICH. London, 1950-1952. Price 35s.

The series of six parts which have been published during the last two years have now been brought together into one volume. The value of these breeding records has already been stressed in the reviews of the various parts, and the whole volume is a publication with which no aviculturist should be without. The book, presented in a practical and useful form, is printed on one side of the paper only, making the addition of personal notes an easy matter. In his acknowledgments of the help he has received from various sources, in particular that of Miss Kay Bonner, Mr. Prestwich concludes by saying "I am conscious of extensive gaps in the records of some of the more popular species. I know perfectly well that there are sources of information I have been unable to tap and that there have been many unrecorded successes of which I know nothing. I hope this present work will open up these sources so that the results may be embodied in a seventh part—of additions and omissions—now in preparation."

It is to be hoped that all who read these pages will assist Mr. Prestwich by sending in any as yet unpublished information they may have or be able to obtain.

P. B-S.

RARE AND EXTINCT BIRDS OF BRITAIN. By RALPH WHITLOCK. Phoenix House, Ltd., London. 21s.

Despite its title this book deals with a large majority of the birds on the British list. In many cases, where no stretch of imagination could label a species as either rare or extinct, its Continental or Irish race is considered to qualify for inclusion. The author very properly points out that sub-species can seldom be identified in the field, but his separate treatment of them may well mislead the novice. The author acknowledges his debt to various authorities, and in the reviewer's opinion the results might have been happier had he followed them more closely. Many of the author's opinions are worthy of consideration, but two at least, that the Greater Spotted Cuckoo is "a smallish bird about the size of Skylark", and that in the Rock Pigeon (*Columba livia*) we have "a species of very similar requirements" to the Fulmar, are ridiculous if intended seriously and most inappropriate in such a book if they are meant to be funny.

The book is illustrated with excellent photographs, many of which have appeared in other publications.

D. G.

THE MANDARIN DUCK. By CHRISTOPHER SAVAGE. Messrs. Adam and Charles Black. London, 1952. Price 25s. net.

That most beautiful of ducks, the Mandarin, has always proved of great attraction and interest to aviculturists and Christopher Savage's monograph on this species should make a wide appeal. Mr. Savage has taken infinite pains to amass a large amount of information about the Mandarin Duck and to this he has added his personal observations and studies of the bird in the wild state in Britain. The opening chapter deals with the history and characteristics of the bird and the author then continues with an informative account of the Mandarin Duck in literature and art. In the chapter "The Home of the Mandarin Duck" he discusses its distribution with great care and marshalls all the available facts regarding the range of this species, quoting extensively from that great authority on asiatic fauna and flora, A. C. Sowerby.

Though originally escapes from collections of waterfowl, the Mandarins have for many years been living in an entirely wild state in parts of Surrey and Berkshire, where, the author points out, the country has all the essentials of their natural habitat in the Far East. Here Mr. Savage has been able to make a close and extensive study of the birds as is evidenced in his chapters on their autumn and winter haunts and habits in Britain, spring display, and nesting, and the brood. Mr. Savage devotes one chapter to discussing the resemblances and differences in appearance, behaviour, and character of the Mandarin and Carolina and gives his opinion that the Mandarin is the most highly developed of all the duck tribe.

In his concluding chapter on the Mandarin Duck in Britain the author refers to the notable collections in which these birds have been bred and been kept in large numbers, such as those of the Duke of Bedford, Mr. Ezra, Messrs. McLean and Wormald, and Lord Grey of Fallodon. He mentions that the earliest imported was probably by Sir Matthew Decker, Bt., about the middle of the eighteenth century, and that in 1834 two were acquired by the London Zoo, since when they have been kept there almost continuously, and have bred fifty-one times. An appendix gives a detailed description of the breeding and eclipse plumage of the adult male, winter and summer plumage of the adult female, and down of the nestling.

The book is excellently presented with a large number of first-class half-tone illustrations, a coloured frontispiece by Peter Scott, and numerous convincing black and white drawings by the author. Two good maps are included, one showing the distribution (so far as can be determined) of the Mandarin in the Far East, and the other showing the breeding colonies, records of winter visitors, and isolated records of the Mandarin in Great Britain, together with the places

where collections of waterfowl are, or have been, sources of free-flying Mandarin Duck.

It is a pity that in a book on which so much care and thought has been expended the Selected Bibliography should contain two mistakes in the German title of Dr. Lorenz's paper on the behaviour of the Anatinae, and that the journal quoted for W. de W. Miller's paper should be a travesty of its proper title.

P. B-S.

A WANDERER IN THE WIND—THE ODYSSEY OF AN ANIMAL COLLECTOR. By CECIL S. WEBB. Hutchinson's, London, 1953. Price 21s. net.

Mr. Webb has had a most adventurous life and to those who have not been so fortunate in this respect he makes it possible at least to share these adventures for so graphically written is his book that the reader is held enthralled for close on 300 pages. Mr. Webb has visited all the continents of the world and his vivid descriptions of travels in South Africa, Portuguese East Africa, Indo-China, Madagascar, British Guiana, Kenya, Tanganyika, Australia, French Cameroons, India, Gold Coast, Ecuador, and the British Cameroons are an education in themselves. As Dr. Geoffrey Ververs writes in the foreword: "His book is packed with solid facts and achievements and contains many new and original observations on the habits and physiology of animals. But do not imagine for a moment that it is a book for zoologists only—it is a book which the general reader will find intensely interesting and instructive."

Mr. Webb is famous as a naturalist and collector of animals but in addition to a vast amount of information on natural history and methods of catching, transporting, and the care of animals, he includes in his book a great deal of fascinating description of natives' customs, witch doctors, superstitions, and local tradition. Mr. Webb writes in a lively and humorous style and all through the book the modesty of his own achievements is evident. He possesses all the qualities needed for those who travel in wild places and have to deal with animals, patience, good humour, initiative, and a quick brain—it is typical of him that when he was being charged by a mad cow, without a moment's hesitation he decided to charge the cow!

Mr. Webb's book is of special interest to aviculturists, and he emphasizes the important part aviculturists can play in the study of bird life, but he has no use for anyone who does not take proper care of captive birds and writes: "If the keeping of birds is undertaken it should be done at the highest level of efficiency or not at all." Mr. Webb's knowledge of birds of all kinds is quite amazing and much can be learnt from his book.

The book is illustrated with no less than fifty-nine excellent photographs and ten line-drawings.

P. B-S.

BIRDS OF MEXICO. By EMMET REID BLAKE, Associate Curator of Birds at the Chicago Natural History Museum. With numerous line-drawings by Douglas E. Tibbitts, Staff Artist at the same institution. 644 pages. Chicago : University of Chicago Press, 1952. \$6.00.

For a very long time have we aviculturists felt a dire need for a practical guide to Mexican birds. While there have been published now and then books on this very pertinent subject, they have always been more or less fragmentary, purposely so.

Now comes Curator Blake and gives us almost exactly what we have been wishing for so very long. His comprehensive work is largely meant as a guide to identification of birds in the field. As such it may readily be carried in one's coat pocket, for the 644 pages are very compactly printed on not very heavy paper.

Aviculturists have, of course, known for a good many years that our neighbour Mexico boasts of many hundreds of species of birds which they have never seen in the flesh, and few of them in illustration. According to the author, no fewer than *a thousand species* of birds representing eighty-nine families have been located in Mexico ; and if subspecies are included in the counting, then the number of birds totals *nearly two thousand*. Surely such wealth of bird-life is found in but few countries, whatever their size and location. Highly favourable climatic conditions are very conducive to the well-being of birds in Mexico.

Author Blake writes concerning each of the 967 species in a concise, informative style that is readily understandable. He begins each account with a terse description of the bird, gives its distribution, and concludes with remarks regarding females, related species, or whatever else is needful to complete the data gathered. No information is given concerning the food requirements of the birds, their nesting, and other habits, no doubt because the book is meant solely for purposes of identification in the field.

The line-drawings are well done as a whole, usually portraying only that particular portion or aspect of the bird likely to be typical and therefore especially useful for quick and sure identification.

All in all, Author Blake is to be highly commended for the painstaking and resultful research which has given us this worthy addition to the literature of Mexican ornithology. *Birds of Mexico* is without question one of the most comprehensive and dependable guides on the subject yet published.

CARL NAETHER.

THE CARE AND TRAINING OF HOME CAGE BIRDS. By BERNARD POE. Illustrated. 120 pages, 1953. New York City : G. P. Putnam's Sons. \$2.50.

One of Putnam's nature field books, this very handy little volume is meant to aid the amateur birdkeeper in maintaining his feathered charges in good health for many years. To this end the author, a zoology professor, has made it his business to touch—rather lightly and often neither expertly nor completely—on varied phases of bird-keeping. There are sections giving advice on how to buy a bird, how to keep it healthy, how to sex it, how to feed it, how to train it, etc. While the advice is for the most part sound, it is frequently very fragmentary and therefore not a reliable or comprehensive guide to cage-bird keeping. Some of the "facts" given in the book are obsolete, as, for instance, the reference to Bird Haven, which firm many years ago discontinued selling birds. There is a helpful though incomplete bibliography. There are some line-drawings which help the beginner to identify certain species. However, their number is very small.

It is quite obvious that any bird enthusiast using this book will, if he delves into the subject at all thoroughly, very soon find himself in need of a more comprehensive, detailed, and complete guide to keeping cage birds. Mr. Poe's work is quite uneven in the treatment of various subjects, as well as incomplete.

CARL NAETHER.

THE BIOLOGY OF BIRDS. By HARRY W. HANN, Assistant Professor of Zoology, University of Michigan, 1953. 153 pages. Illustrated. Ann Arbor, Michigan : Ulrich's Book Store. \$2.50.

This is a very concise volume into which have been compressed highly informative, relevant, and factual data concerning every essential phase of a bird's life and activity. Written in non-technical language, apparently the outgrowth of a course in ornithology conducted by the author at the University of Michigan, this readable book is worth the time and effort of every serious bird student, for it provides him with factual, up-to-date information, the sort of which he is not likely to obtain in such convenient and concise form in the average so-called bird book, especially the popular one.

The author opens his treatise with a chapter devoted to the morphology and physiology of birds, which in turn is followed by other chapters dealing with bird flight, migration (homing), breeding, anting, longevity, banding, distribution, conservation, and other relevant aspects of the subject. Each one is treated very compactly and quite thoroughly. Frequent references to authentic sources of information are given in the text, and there are more detailed ones in an excellent bibliography. A number of illustrations enhance

the value of *The Biology of Birds*—a very helpful and at the same time readable piece of writing, which deserves to have a permanent place on the serious bird fancier's bookshelf.

CARL NAETHER.

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NOTES

BREEDING OF CINNAMON-BREADED ROCK BUNTING (*Fringillaria tahapisi tahapisi*)

Allen Silver (page 113) records the breeding of this Bunting in captivity in South Africa.

The Society's Medal was awarded to Major M. S. Aldham, of Bodmin, Cornwall, for his success in breeding this species in 1937. The breeder gives a full account in *Avicultural Magazine*, 1937, 311. One young one was reared in the first nest, four in the second, and eggs were laid but not incubated in a third.

A. A. P.

* * *

CORRESPONDENCE

THE PROBLEM OF THIRD BROODS OF PARRAKEETS

With reference to Mr. Boosey's criticism of my methods for preventing third nests of Turquoisines, I have never myself known a healthy hen, properly fed, neglect the feeding of her well-grown brood simply because the cock had been taken away.

With regard to the risk of young birds damaging themselves seriously when being caught up, I have also not found this to be great if, as should always be done, a proper supply of leafy branches has been laid on, or tied to, the dangerous areas of wire netting in the flight *before* the brood has flown. Young birds do not crash very hard against wire netting unless there is an unimpeded view through it.

CROWHOLT, WOBURN,
BLETCHLEY, BUCKS.

BEDFORD.

BREEDING OF GREY PARROTS IN INDIA

With reference to my letter in the May-June number of the Magazine, Sir Godfrey Davis has written to me to say that my recollection of the conversation I had with him some years ago about the Grey Parrots breeding in India is wrong.

He says that it was not a secondhand account, and that he told me that he had actually seen the birds himself.

E. BOOSEY.

BRAMBLETYE, KESTON,
KENT.

HYBRID SONNERAT'S JUNGLE FOWL

Mr. Johnson's interesting article on the hybrids between the Grey or Sonnerat's Jungle Fowl and domestic bantams reminds me of having seen this year, in the Zoological Gardens of Cologne, some birds of this cross.

The females bore a slight resemblance to hen Sonnerat's, but the males showed no trace of Sonnerat parentage except for the voice, which was exactly that of *Gallus sonnerati*, and it was this distinctive call that drew my attention to the birds.

It would be interesting to know to what extent the call is hereditary and whether it is the same in Sonnerat's \times Domestic as in Domestic \times Sonnerat's; also whether there is any sign of the eclipse plumage on the neck, characteristic of male Sonnerat's.

ZOOLOGICAL SOCIETY OF LONDON,
REGENT'S PARK, LONDON, N.W. 1.

J. J. YEALLAND.

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- T. H. ALEXANDER, 149 Kirkgate, Wakefield, Yorks. Proposed by Miss K. Bonner.
Miss D. I. CAFFERTY, 3526 North Reta Avenue, Chicago 13, Illinois, U.S.A.
Proposed by Karl Plath.
- P. J. GLOVER, Delamore Farm, Cornwood, S. Devon. Proposed by W. B. Frostick.
- C. H. KEELING, 2 Highfield Terrace, Chesterfield, Derbyshire. Proposed by
A. Martin.
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by Miss K. Bonner.
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Prestwich.
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A. A. Prestwich.
- H. STIVEN, 27 Park View, Lochgelly, Fife, Scotland. Proposed by Miss K. Bonner.

NEW MEMBERS

The twenty-two Candidates for Election, proposed in the May-June, 1953, number
of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

READMITTED

- J. H. ARNOLD, 20262 Canyon Hgy. 18, Anaheim, Calif., U.S.A.
A. W. ROBISON, 125 Maiden Lane, San Francisco, Calif., U.S.A.

AMENDED NAME AND ADDRESS

- K. W. DOLTON, Sundown, Oakleigh Avenue, Hallow, Worcester.

CHANGES OF ADDRESS

- C. S. GULBENKIAN, to "Kent House," Great Titchfield Street, Oxford Circus,
London, W. 1.
- LADY POLTIMORE, to Benwell, P.O. Box 6, Bindura, Southern Rhodesia.
- Dr. BEN J. SVOBODA, to 1400 E. Olive Street, Compton 1, Calif., U.S.A.
- F. L. TUMA, to Limhamnsvagen 12 A, Malmö, Sweden.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Rock Pebbler, male ; Stanley, male.—G. A. GJESSING, "Woodberry Hill," Konnerud, Drammen, Norway.

WATERFOWL RINGS

Members are reminded that the Society's special blue rings are always available. All Waterfowl in collections, both public and private, should carry them.

Size.		Price per dozen, post free.	
		s.	d.
2-3	Teal	2	3
3	Wigeon	2	6
4	Mallard, Pintail, etc.	2	9
4-5	Smaller geese	3	6
5	Greylag	4	0

Requests for rings should be addressed to the Hon. Secretary, Avicultural Society, c/o Zoological Society of London, Regent's Park, London, N.W. 1, from whom all particulars can be obtained.

POST-MORTEM EXAMINATIONS

Attention is drawn to the following rules :—

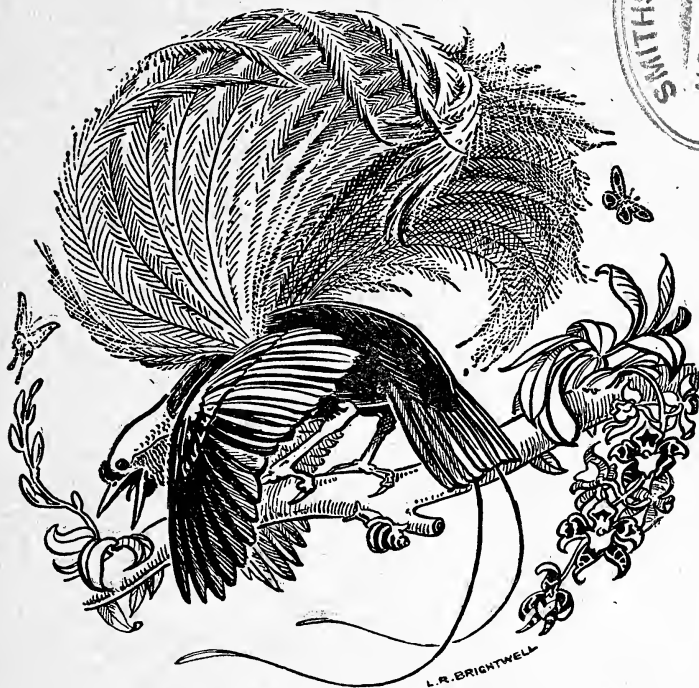
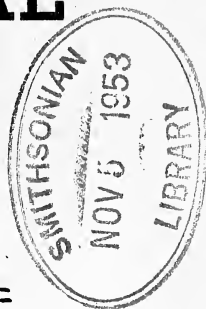
Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. W. Lawrence, The Zoological Society of London, Regent's Park, London, N.W. 1.

Rule 2.—A fee of 10s. and a stamped addressed envelope **MUST** be enclosed with the bird.

Rule 3.—No body or skin of any bird will be returned under any circumstances whatever.

ARTHUR A. PRESTWICH,
Hon. Secretary.

AVICULTURAL MAGAZINE



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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

**Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
Oakwood, London, N. 14.**

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

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**Secretary-Treasurer : Ivo Lazzeroni, 5034 Templeton Street, Los Angeles 32,
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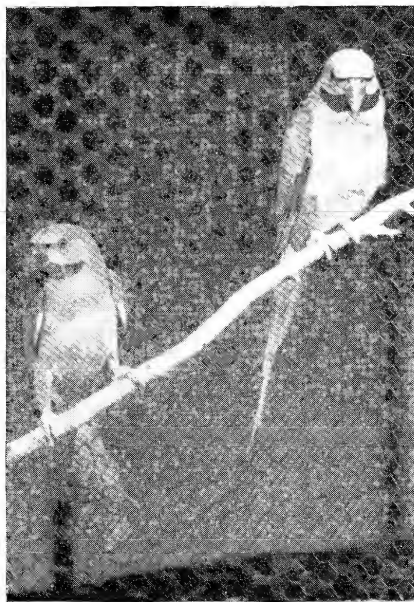
The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

**The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.**

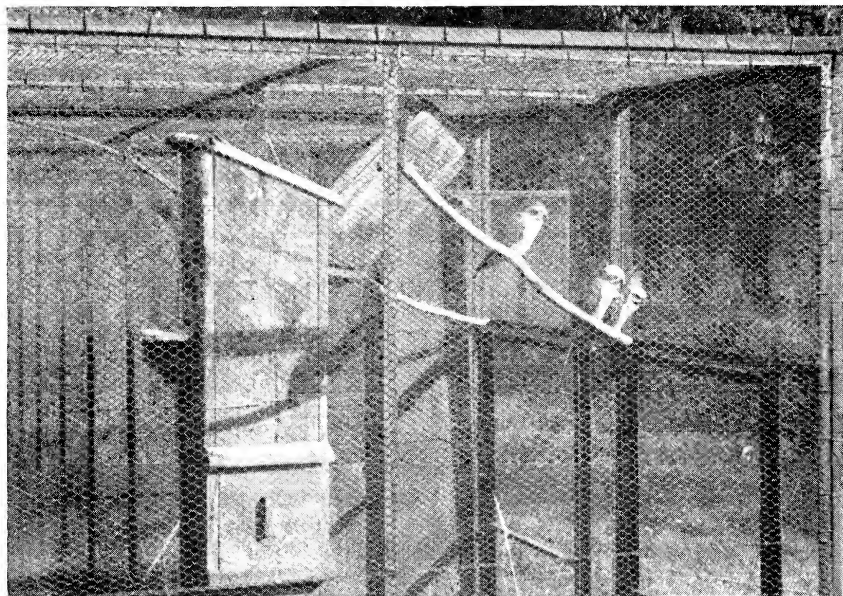
The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford, England. Telephone : Hertford 2546-9.



JUVENILE AND ADULT COCK
MOUSTACHE PARRAKEETS.



HEN MOUSTACHE PARRAKEET
(feeding on spinach leaf).



AVIARY WITH COCK, HEN, and JUVENILE MOUSTACHE PARRAKEETS,
SHOWING NEST-BOX.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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SEPTEMBER-OCTOBER, 1953

BREEDING OF THE MOUSTACHE PARRAKEET

(*Psittacula alexandri fasciata*)

By E. N. T. VANE (Ballinger, Bucks, England)

Generally speaking the Asiatic parrakeets are not as popular with aviculturists as their Australian counterparts. They compare favourably in colour, shape, and plumage, indeed they excel in the latter, but they have the disadvantage of being more difficult to sex on the whole, until the third moult, not so ready to go to nest, and possibly somewhat noisier.

To all these features there are exceptions, some Australians are never easy to sex at any age, some can hold their own in vocal power with almost any living thing on earth, and there are still several yet to be persuaded to breed in captivity. On the other hand some Asiatics are readily sexed at a year old, some breed without difficulty, and some are reasonably quiet in their behaviour. The Moustache is one of the most attractive birds I have ever kept. Most people probably think of these birds as the miserable little half-dead creatures that were at one time freely imported under most unfavourable conditions. Poor little wretches caught raiding the crops and only saved from immediate execution because some half-witted European was prepared to pay money for the thieving little pests. These were nearly all immature youngsters of the year of an almost uniform green colour with an absurd caricature of a handlebar moustache, which name has been appended to them as a permanent reminder of their infirmity. During the relaxation of the parrot ban comparatively few of these birds were brought over, and they were evidently not a paying proposition to the dealer, adults seemed to travel well considering all things, but young birds died easily.

The appearance of a fully adult pair is really magnificent. One dealer advertised them as "miniature Derbyans" and evoked many caustic comments from certain people who were indignant that such a

comparison could even be suggested, but it is in fact quite a justifiable one. In view of the inaccuracy of some descriptions given in the past I give a fairly full one of each sex here. These are taken carefully from living specimens so that allowances must be made for individual variations, as I can only refer to my own pair and a very few other specimens I have been able to inspect. In the cock, the head above the moustachial streak right over the crown is a lovely lavender grey. There is a black streak from eye to eye along the lores, and over the nostrils also the characteristic black moustache. The eye has a very light grey iris which at times appears to be quite yellow. The upper mandible is red and the lower black. The chest is a pinkish lilac merging into a pale green belly and abdomen. The nape is an intense bright green, the remainder of the mantle, back, and wings being green with a golden yellowish-green patch on the wing. The tail is green, the central feathers being blue on top and the underside of the tail being yellowish. The feet are grey.

In the hen the head above the moustache is a pale bluish grey, much more pale blue than the cock. The iris of the eye is again yellowish-grey and appears to vary with the light. Mandibles are both black and she has the same moustachial and eye to eye streaks of black as the male. The chest is pink and noticeably curls up behind the black moustache towards the top of the head. Nape bright green. Mantle, back, and wings green, abdomen pale bluish-green. There is a faint suggestion of a lighter wing patch but not so pronounced as in the cock. In size the birds are slightly smaller than the common Ring-neck, but are not nearly so powerful in flight as the wings are noticeably shorter and their flight recalls that of a lorikeet.

The young bird is an almost uniform green except for the moustache and eye streaks, the area between these streaks being grey. There is no visible wing patch, but the primaries are edged with light yellow which appears to fade, possibly by attrition. On leaving the nest the mandibles were both paler red than the cock's upper one, but both soon darkened and became completely black in a few weeks.

My birds were imported in 1952 shortly after the ban was lifted ; during that year they were housed in an aviary of modest size and went to nest, the hen laid eggs and sat, but there was no result owing to the fact that they were interfered with and she deserted. It was not surprising, therefore, that when the opportunity to acquire a pair of birds that had already shown their willingness to breed was offered to me, I eagerly took advantage of it. As they had been kept indoors for part of the winter I turned them into an indoor flight of only about 8 feet in length, where there was no heat. The hen was a perfect shrew where the cock was concerned, he was not allowed on the same perch and whatever perch he chose that was the perch on which she wanted to be. All the time they were indoors they were

remarkably silent, scarcely ever making any noise or uttering any call-notes ; even when swearing at her partner, the hen only ordered him off by shoving him with her head and opening her beak at him.

Early in the year, during a mild spell of weather, they were turned out into an aviary 15 feet long, 3 feet wide, and 6 feet high, constructed entirely of steel and facing south. The only shelter was of asbestos sheet 3 feet square and with its floor 4 feet above ground-level. It was one of a block of eight flights and their only neighbours were a pair of Bourkes, whom they entirely ignored throughout the season. Their flight was at the end of the block, which enabled me to have one or two very surreptitious inspections during the course of events. By sliding back an inspection trap with a long stick whilst the hen was feeding I was able to see the first egg, the young shortly after hatching, and once or twice whilst growing. The nest box was an old campaigner, a grandfather clock box of thick timber which would cost an impossible sum to-day and would most probably have infringed the timber control regulations then in force. It was filled from ground level for about 2 feet with earth and topped with some 9 inches of damp peat mould, so that there was a drop inside of some 2 feet from the entrance hole, negotiated by the usual wire netting ladder.

The food supplied consisted of sunflower, oats, canary, buckwheat, millet, and hemp. They always selected the sunflower first, though they were very partial to apples and pears, and were supplied also with brown bread rusked up and fed crumbly moist. As I have frequently mentioned previously, all my parrakeets have this addition to their diet ; almost without exception they relish it immensely, and the great advantage I find is that through this medium they can be persuaded to take all kinds of extras such as mineral salts, wheat germ oil, cod liver oil, or any other tonic it is desired to administer, without the use of force. Green food consisted of chickweed, poa annua, dandelion seed, leaf spinach, and later on sow thistle, all supplied liberally and varied according to season. They also had access to old mortar grit and cuttle bone. After breeding operations had been completed successfully, we found that the hen was a most engaging personality with human beings. She will come right up and accept titbits from one's fingers, indeed she will soon remind one that she expects something every time she sees one coming. She is very fond of green peas, apple, pear, or banana, but she will not allow the cock to share these delicacies and as he is more stand-offish it is difficult to give a fair distribution to them because she takes one piece from one's fingers and whilst one is fixing another on the wire for the cock and youngster, she consumes her own with indecent haste and then purloins the other pieces before one can get far enough away to give the others a chance.

Almost as soon as they were released into this flight a change in attitude to each other was noticeable. The hen became quite tolerant and the cock began to assert himself. For the first time too it became apparent that they had quite powerful voices and a talent for mimicry, as they can imitate the calls of the Noble Macaws which are the most frequently heard in great volume well enough to make one wonder which bird is creating a disturbance. In the middle of March the cock was always displaying, and whilst doing so he is a magnificent bird. He stands on the perch beside the hen, draws his head backwards and upwards and keeps bowing to her whilst uttering a song which can hardly be called a warble, indeed it can hardly be called a song. But it is perfectly obvious to anyone what he is saying, that is anyone but the hen ; she is so bored that she nearly dozes off in the early days, though not for long, and they quite evidently are thoroughly happy in each other's company.

From the frequency and length of endurance of copulation, I should say that it was a triumph of achievement on the part of "X" (the evil spirit of aviculture created by the Duke of Bedford), to succeed in arranging that two out of the three eggs laid were infertile. However, that was the result. The hen was first observed to use the box on 23rd March. In early April she began to stay in the box for quite lengthy periods and the first egg was laid on the 4th, some time in the evening I believe. From then on she was left very much on her own, and it was not until the 17th that another chance to look in was presented, when she had three eggs. Incubation appeared to start with the first egg, as from the 4th onwards she spent all her time in the box, although it is impossible to say whether she was generating sufficient heat to start incubation. She was very suspicious of one's actions at this time, and if she heard anyone about whilst feeding she immediately dashed back into the box. Just after sunset on the 3rd May a youngster was definitely heard being fed, which puts the period of incubation at approximately twenty-eight days. She brooded the youngster pretty closely, which was just as well seeing that it was a single bird, but it appeared to thrive without incident. The progress appeared to be slow, as with other *Psittacula*, but the young one could usually be heard making a lusty noise when being fed. At twenty-five days old it was still downy and without any proper feathers, and had large black eyes. On the 17th June it was seen at the nest hole looking out, but it was still frightfully shy and withdrew immediately it saw anything move. On the 20th it came out on the platform to be fed whilst it thought it was unobserved, and it could then be seen that the bill was a pale red. It finally flew on the 23rd June, fifty-one days after hatching. It roosted out under cover the first night but the hen went back into the box and I thought she might go to nest again. The cock also appeared to take this view,

but she soon disillusioned us both on this point and relations between the pair soon degenerated by degrees back to the old hen-pecked days. During the whole of the incubation period I did not see the cock enter the nest, he looked in and called the hen off to feed or be fed, but that was all. Neither does he feed the young bird, although he may do so, because I have only very seldom seen either parent actually pumping food into the youngster, and on each occasion I have done so it has been the hen, and as soon as they realized they were being watched they have broken off immediately.

About ten days after leaving the nest, it was noticed that the young bird's bill was darkening and it was almost entirely black in a month. The cock was seen to feed the hen occasionally, but he was never given an opportunity to mate although he seemed to wish to do so. From the behaviour of the parents I am inclined to think the young bird is a cock ; the hen always feeds it, and if the youngster worries the cock for food he promptly drives it away although there is no spite in his action such as one finds in the Broadtails.

We now have a happy family of Moustache or Banded Parrakeets, albeit a small one. The hen is delightfully tame, the cock does not count for much, and the youngster is a lovely little bird. It is most amusing to watch him try and take a particular tit-bit from one of his parents ; they both drive him off, but nothing daunts him and he never fails to secure at least a part of the feast. It is sincerely to be hoped that it will be possible to establish these delightful birds in English aviaries as there are quite a few still about.

Although this appears to be a first breeding, it can only be because there has never been sufficient effort to breed them previously. There was nothing very difficult in the whole process and I am sure plenty of others can repeat the performance. If anyone wants to know my secret for success I am not averse to telling them how it may be done. It is just like the young man who started out in business on his own with ten pounds, and recently retired worth a hundred thousand pounds. He attributed his success in life to hard work and diligence, perseverance and determination in the face of many difficulties and the death of a rich uncle who left him £99,990. My rich uncle was getting the right pair of birds and then giving them the benefit of all my care, attention, and experience. Anyone else can do the same.

* * *

As described above E. N. T. Vane has bred a Moustache, or Banded Parrakeet (*Psittacula alexandri fasciata*). It is believed that this may be a first success.

Any member or reader knowing of a previous breeding of this species in Great Britain or Northern Ireland is requested to communicate at once with the Hon. Secretary.

BIRDS, PLANTS, TREES AND FLOWERS IN THE ROTTERDAM ZOO "BLIJDORP"

By F. J. APPELMAN (Rotterdam, Holland)

Until a few years ago the splendid hothouse adjoining the big Riviera-Hall in the Rotterdam Zoo, contained plants only. However splendid the collection of tropical and subtropical plants was, only a comparatively small part of "Blijdorp's" visitors showed much interest, and most of them "did" the hothouse in a few minutes.

Then the Director had an idea: "Why exhibit plants and flowers without birds, and why exhibit birds without plants and flowers? Those gems of Nature, magnificent flowers and beautiful birds, belong together, and to do them both justice they should be exhibited together!"

So a number of smaller and bigger aviaries were built amongst the orchids, palms, ferns, and many other plants, and when possible the aviaries themselves were also planted with plants and flowers, the colours of which were carefully chosen to blend with the colours of the birds.

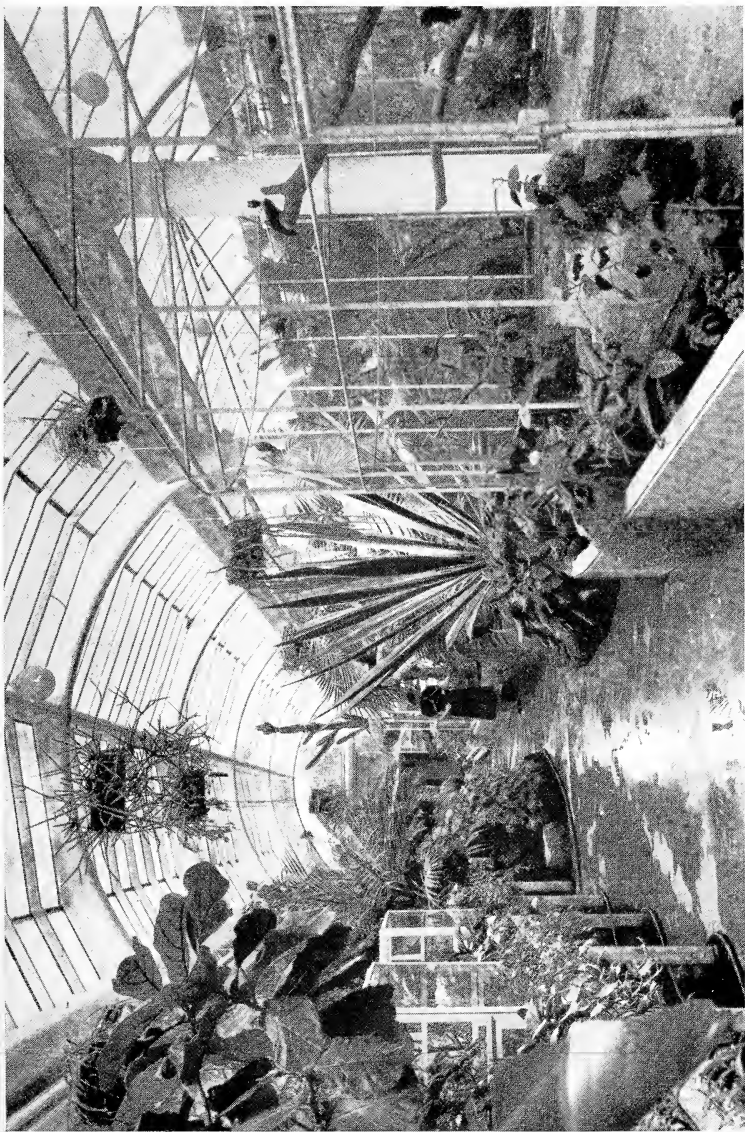
The success was overwhelming; after the birds were taken into their new surroundings, the hothouse, formerly only visited by few people, was always crowded with visitors, who proved they appreciated this splendid combination of exotic birds amidst exotic plants which up till then had been rarely seen. And how did the birds do? We can only say: extremely well!

It is pointed out that before the new arrangement, it had already been observed that tropical birds moult much easier, faster, and better in hot and humid surroundings than in colder and drier places. Never were our Macaws finer in spring than after wintering in the hothouse. Moreover, we installed combined self-registering thermometer-hygrometers, and made sure that we arranged in the hothouse the same, or about the same, climatic conditions that prevail in the rain-forests in the tropics.

To check the hothouse "climate" we have the average daily temperature and moisture curves of certain places in Indonesia on the registration-strip and try to keep our hothouse-curves as closely as possible to this curve.

It is our opinion that a little difference in the temperature and humidity does not matter so much, but that the course of the curves is most essential. Therefore we are content if the course of our hothouse-curves runs more or less parallel and not too far away from the standard-curves (see illustration).* Amongst the birds successfully

* It should be understood that for our control we use the average daily temperature- and moisture-curve that prevails during the year; so we do not take in account the different seasons (monsoons).

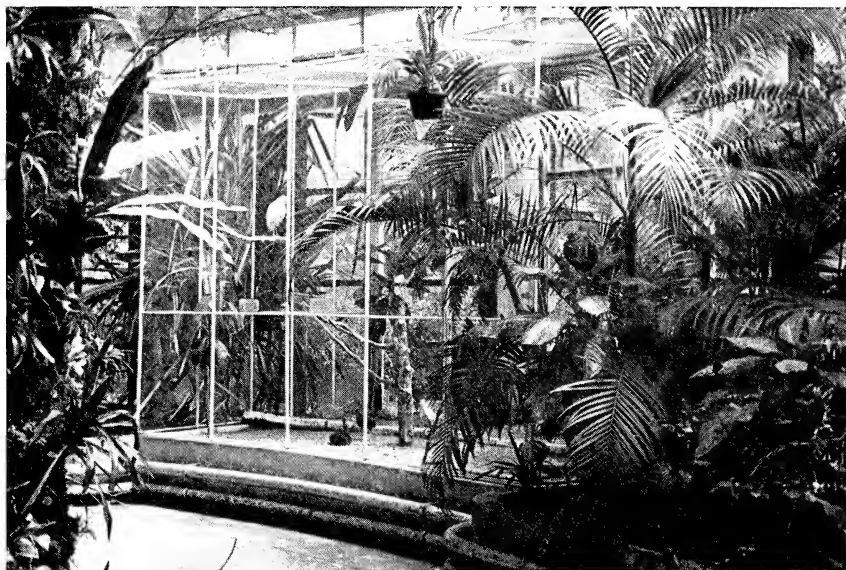


HOTHOUSE WITH LARGE AND SMALLER AVIARIES.

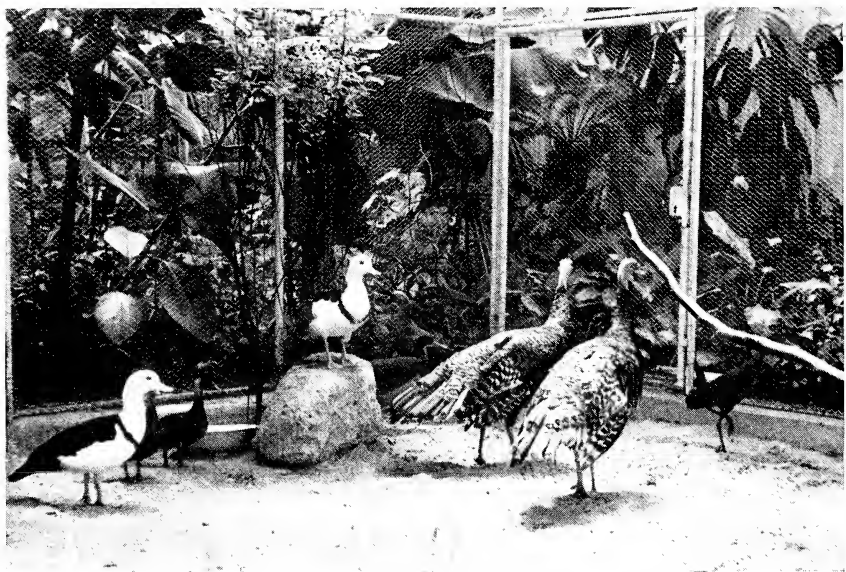
Large Aviary contains Red Birds of Paradise.

Copyright

[Rotterdam Zoo "Blijdorp"
[To face p. 156.]



LARGE AVIARY CONTAINING HERONS AND TREE DUCK IN HOTHOUSE.

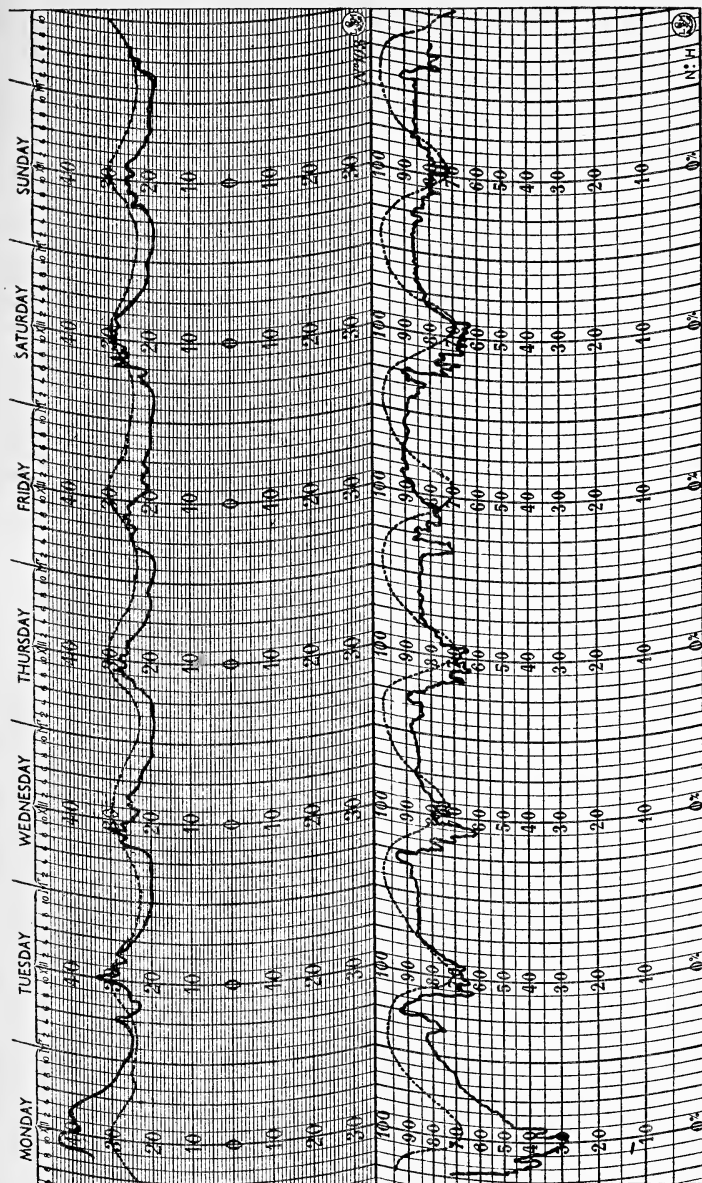


LARGE AVIARY CONTAINING OCELLATED TURKEYS, RADJAH SHELD-
DUCK, BRAZILIAN TEAL, AND CAYENNE RAIL IN HOTHOUSE.

Copyright]

To face p. 157.]

[Rotterdam Zoo "Blijdorp"]



GRAPHS OF HEAT AND MOISTURE CONTROL IN THE VICTORIA REGIA HALL IN "BLIJDDORP"

Above : Temperature. Below : Moisture. Drawn Line : Curves obtained in the Hothouse.
Dotted Line : Average Daily Curves of Takengon (Sumatra).

kept in this way are : Ibises, Birds of Paradise (six species), Jacanas, Nicobar Pigeons, Gouras, Ocellated Turkeys, Radjah Sheld-Duck, Brazilian Teal, Toucans, Tanagers, and many smaller birds.

Of course, at this moment we cannot say that we have solved the problem entirely, as our experiment has only been in operation for one and a half years. All we can say is that until now we have suffered only minor losses, and that the birds are doing extremely well. They are in fine condition and very lively, loudly calling and signalling to each other. Some even started breeding, e.g. the Crowned Woodpartridge (*Rollulus roulroul*), from Sumatra, known as a bird that is not too easy to keep in captivity.

It should be understood, however, that this way of keeping and showing birds is rather expensive. It is, of course, hardly possible to keep parrakeets in this way, as they will ruin all plants in a few hours. But even small seed-eating birds do a lot of harm to the plants.

Best fitted to live in harmony with flowers are insect-eating birds and, to a certain degree, fruit-eating birds, but even these soil flowers and leaves with their droppings, so that the planting of the aviaries has to be changed at least every two weeks or even more often. This necessitates keeping in stock a large number of plants, shrubs, and trees, which also means a lot of work for the gardeners !

But in any event we are sure that our idea : " Show your animals in beautiful surroundings ; keep birds and flowers together " is highly appreciated by the visitors, and cannot fail to teach the public the sense of beauty, harmony, and love for Nature's inexhaustible treasures, which is one of the first aims and duties of a modern Zoo.

*

*

*

THE BREEDING OF GREEN INDIAN RINGNECKED PARRAKEETS

By THE DUKE OF BEDFORD (Woburn, Bucks, England)

“ Nothing very remarkable about that,” I can hear you say. “ Lots of people have bred them ” ! That, however, Reader, is just where you are mistaken for no one, not even Dame Nature herself, has bred this particular *kind* of Green Ringneck !

Sexing immature Ringnecks by their appearance is always a bit difficult, for although hens show slightly more yellow in the iris of the eye than cocks, the difference is not very great, and the more closely you examine a lot of young birds the more confused are you likely to become. It came about, therefore, that what I had for some time believed to be a pair of two-year-old blue Ringnecks turned out to be two cocks, judging by their behaviour as the breeding season approached. As I already had a certain hen, this left me with a spare cock and I decided, if possible, to mate him to a lutino in the hope of breeding something which might even be split for white. By rather unusual good fortune I did get hold of a lutino hen which was said to have bred—quite a good bird, save that the ends of some of her toes were missing, doubtless because her owner had not taken the precaution to avoid exposing her feet to severe frost.

When I introduced the two birds to one another, although the blue cock had shown signs of being in breeding condition, their attitude of surprise and alarm was not exactly promising. As on a previous occasion when I had put a blue and a lutino Ringneck together, the reaction of each bird seemed to be “ Good heavens ! I never saw such an extraordinary-looking object ! ” As, however, they did not seem disposed actually to fight, I decided to leave them together and see what happened. After a while the blue cock showed some desire to make advances to the hen, but for a time he met with a very chilly reception. When he walked up to her in the consequential manner which is part of a Ringneck’s display, she simply ignored him, gazing into the distance as though he did not exist. Only if he actually touched her and offered to feed her did she open her beak at him in an ill-natured way. In the past she had doubtless had a mature green or lutino husband with a well-developed ring and the ringless, two-year-old “ Little Boy Blue ” seemed to her a most inferior substitute. Some time later I noticed the blue cock examining the nest-box, but as the hen’s attitude towards him remained chilly and distant, it was with some surprise that one morning, finding no sign of her, either in the aviary shelter or in the flight, I realized that she must be in the nest itself. After that things began to look more promising, and in due course it became apparent that the lutino was sitting. Some

weeks later I saw the cock emerging from the box—an almost certain sign that the young had hatched. How is it, I wonder, that parakeet fathers are made aware so quickly of the birth of their children when the latter are still so tiny and feeble that they can hardly make any audible noise? Do their wives manage to tell them and, if so, how is it done? I remember some time ago reading a charming account of observations made at the nest of a pair of breeding partridges, which included a description of the way in which the hen drew her mate's attention to the arrival of their first-born child, with the result that he became so wild with excitement and delight and cut such capers that he could not even see where he was going and ran into a tree! Thereafter things progressed in an uneventful and satisfactory manner in the Ringneck family. Judging by the amount of food consumed, however, the brood was not a large one, and in due course when two nice young ones left the nest, this proved to be the case. As I rather expected, they are green, but I imagine, if they are sex-linked, that both cocks and hens are split for blue and the young cocks, if mated to blues, might even produce some albino daughters.

* * *

BREEDING RESULTS FOR 1953 IN CALIFORNIA

By DAVID M. WEST (Montebello, California, U.S.A.)

The current breeding season has had its high and low points. Certainly there were times when one wondered about "birds inhumanity to man" for some pairs only tantalized us with expectations.

Our famed (unusual) California weather stayed with us the entire season. From January to March it was summer—with day after day of sunshine and clear skies. It turned out that this was our mildest winter in many years and also one of the driest, as we had very little rain. As a result many birds came into fine breeding condition by March, when dull grey skies and cool damp weather became the order of the day. This seemed to cause indecision in our feathered friends, leaving them wondering whether they should nest, moult, or drop dead. In the end they did just that—some moulted in March, some nested, and some just gave up and died.

The failures and sad news department we'll cover first. Stanley Rosellas, always my favourite Rosella, proved again a disappointment. Though I have had Stanleys for twelve years, I have never been very successful with them. The season started with three pairs, and the hen to one of the pairs gave up, forever, the idea of increasing California's Stanley population, for she was found dead one morning for no apparent cause. The other two hens immediately started to

make up for her demise by starting large families. One hen laid eight eggs and the other hen laid a clutch of nine. After this strenuous effort one hen sat very half-heartedly for about ten days, and then deserted, and the other hen never did decide to incubate, though I will say, in her defence, she faithfully checked her eggs daily and would sit on them for a half hour or so each day. It was most unfortunate that we had nothing to transfer the eggs to—and so the result was a large nothing for the Stanleys. Better luck next year?

Crimson-wings, always rare in California, were very tiresome. A young male disapproved of his mate and luckily we were able to provide another one that he immediately accepted. Though she looked in the nest and even sat in the nest for a few days, nothing eventuated. As he was just a two-year-old cock this was rather to be expected. This pair took great interest in the matrimonial affairs of all the other birds, even to looking in the nest of a pair of Silver Zebras housed with them. As the Zebras did not seem to object, it made little difference, and the Zebras just kept right on raising large families carefully supervised by the Crimson-wings. A second pair of Crimson-wings scrapped all fall and winter, but became very friendly during April. With none of the usual nest-box inspection you find in the Rosellas, she laid two eggs quite suddenly, and then never visited the nest again. I placed the eggs under some Cockatiels who successfully hatched the one fertile egg, but would not feed the chick. We hand-fed it for ten days and then found the youngster dead one morning for no apparent reason. Quite to our surprise the female laid again (two eggs) and though she sat faithfully the eggs were clear. The San Diego Zoo is quite successful with this species.

Red Lories visited the nest-box and mated, but nothing further eventuated. The female is probably too young, for she was in juvenile plumage when obtained. This pair were raised in Arizona by Mr. Sheffler. These Lories are always particularly annoyed when the lawns are mowed. They very noisily object, hanging by the wire and scolding. This pair are permanently frustrated by their futile attempts to kill a neighbouring pair of Pileated—whom they especially seem to resent.

A pair of Black-winged Lories also mated, but no nest was provided for them as the hen was in a very bad moult and we rather wondered if raising a family would help her tacky appearance. The Black-wings are certainly much more quiet than the Red Lories. This pair also is from Arizona.

Turquoisines had three clutches of clear eggs. This is a surprise as they are in a large portable aviary and are a handsome three-year-old pair. Turquoisines have the unhappy habit of being very scrappy—a fault the other *Neophema* happily lack.

Brown's Rosellas showed great interest, but this pair were intro-

duced very late and they fell into an early moult. This pair fortunately seem well-disposed towards each other—which has not been the case with most of the Brown's Rosellas here in California.

A male Stanley mated to a female Blue Rosella did not even display to her, and both birds seemed quite contented just to sit the season out.

Blue-bonnets laid and sat very well, but all six eggs were clear. Of the four pairs, only one laid, and the other three pairs just visited the box and looked interested. A male Manycolour mated to a female Blue-bonnet did nothing and was found dead one morning with a broken neck.

Blue India Ringnecks proved interesting. Although I should have known better, I had rather expected this mutation to be a cobalt blue. I was tremendously surprised to find they are an unusually lovely light blue—what we here in California call a "sky-blue" or "powder blue". The sex of the first two birds posed an interesting problem, and one that was difficult to solve, since they were very nervous, and upon seeing anyone watching them would immediately retreat into their shelter—not to reappear for some time. Finally, during March, they did some displaying, and when a nest-box was hung their actions left no doubt they were a pair. The nest-box was removed after we were sure of their sex, for they began a very heavy moult which lasted an unusually long time. They eat a tremendous amount of fruit daily, and each day a large apple and orange are given, and by the following morning nothing is left. They also proved tremendously fond of the young buds and flower buds of fruit trees of plum, peach, and apricot, and as they grew more confiding would fly down (while we watched) to their daily branch of peach and apricot. They made a very fine display as they crawled about among the pink and white blossoms. For Ringnecks they are quiet—at least in comparison to some I had years ago.

A second pair of blue Ringnecks were an obvious pair from the first and were always confiding and steady. They are all very fond of ripe corn (on the cob) and will easily eat an ear a day.

It might be interesting to note that prior to 1950 there were no lutino Ringnecks in the United States. However, in that year a zoo imported a small breeding nucleus of eight lutino and lutino-bred Ringnecks for study. These have prospered and as a result some lutino Ringnecks are being raised every year. Even so they are still very scarce in this country and are still too rarely seen.

Many California breeders have told me quite definitely that, in their experience, the young male Ringnecks will obtain their ring at from sixteen to eighteen months. This is not the case with European birds, judging from the printed references.

Barraband's did nothing, though they always looked like they intended to raise a family. Both pairs displayed, fed, and mated,

and looked into their nest-boxes, but eventually did nothing. They are great favourites of mine, and their friendly and comical ways are a joy.

Yellow Rosellas also looked at their box but got no further. They are surprisingly tame and friendly, and ever ready to fly to the wire for a piece of grass or a nut. One male appears to have sore feet and the ankles seem to be swollen. Does anyone have suggestions on what should be done to help this bird?

On the sunny side of the account the really outstanding numerical success of the season was 16 young Bourkes from three breeding pairs. The first pair deserted two fertile clutches of eggs and then started a third clutch. When the third clutch also was deserted (why, I don't know) I was able to save the fertile eggs, and these were given to a spinster Nyasa Lovebird who raised one young Bourke for about three weeks when the Bourke was removed and hand-fed. A second pair showed no signs of nesting until very late in the season, when the hen suddenly retreated to her nest-box and reared a fine brood of four. The third pair really did themselves proud, and from three nests they reared eleven (5, 4, 2) without any trouble or fuss. They actually would have started a fourth clutch if the nest-box had not been removed. This pair was in a large cage with the pair of Barraband's and the male Bourke never hesitated to do battle with the Barraband's who always obligingly retreated before his determined attacks! These battles were always short, and the Bourkes made no objection to the Barraband's sitting on top of their nest-box. I was especially interested to note that the Bourkes would eat the (cracked) sunflower seed that the wasteful Barraband's would drop in the sunflower bowl. This doubtless helped the young Bourkes to be the really fine specimens they are.

Manycolours were successful again this year. One pair raised seven (4, 3) in two nests, while a second pair, composed of a fine male and a very nervous hen, did not fare so well. Their first nest of four fertile eggs was given to a very trustworthy Redrump hen, who duly hatched them and let them all die! A second nest of three youngsters was deserted—and though they were hand-fed they never prospered, and died one by one. A third pair did not nest.

A very lovely pair of Pileated (with a long five year record of failures and desertions) hatched a single youngster which was successfully hand-raised. It is a very tame and confiding bird—as most hand-raised Pileated are. A second pair of Pileated were too young to nest, although the year-old cock did display and call to the hen.

All the African Lovebirds did well. Peachface, Fischer's, Nyasas, Black and Blue Masked, all raised good numbers of fine youngsters. Of especial interest were the lutino Nyasas. These are really extremely beautiful with their golden bodies and pink heads. We had

a single lutino male and one (purported) split cock to start the season. These two males were placed with three known young females early in the season. The split (?) cock raised five young (3, 2), and the lutino male and his mate raised seven (1, 6). All the twelve young were greens, but they have been carefully segregated and some of them at least must be splits, so it does give us some good stock for next year. The second nest of six the male lutino had, was considered too large, and so the extra hen Nyasa was given two of his fertile eggs and duly reared them. This spinster situation was interesting because at various times both males entered her nest, but none of the many eggs she laid proved fertile. Nyasas are very fond of greens and ours also eat large quantities of apples and oranges, along with soaked bread while rearing young. At the time of these notes (July) both pairs of the Nyasas again have eggs, so the total number of young for the season is still uncertain. I have not observed the cock helping to build the nest—the female doing all the work by carrying the nesting material in her beak. I put in a fresh palm frond each week for them—and this has proven most satisfactory for nesting material.

Scarlet-chested did very poorly. Of four pairs one was too young, one had two sets of clear eggs, one pair raised two, and the other three. Rather disappointing as they are usually very dependable.

Princess Alexandras also did very poorly. We started the season with five pairs, but one of the females died early in the season and we could not replace her. Of the remaining four pairs, one pair did not nest at all; one pair reared a single but very fine only child; one pair had four fertile eggs that failed to pip and a second nest of clear eggs; and the fourth pair reared two very fine youngsters. The father of the two youngsters just mentioned is a blue sport, and is one of the loveliest birds I have ever seen. The pink throat and tail in the normal bird are replaced with white, while the body is blue-grey and the wings the loveliest sky-blue. This is a very fine large male, very vigorous and tame. Last year he was mated to a good hen, and though they were actually observed to mate, she did not nest. This year he mated to a proven hen who immediately laid five eggs. Of the five one was clear, two failed to pip, and two were hatched and raised. These two youngsters are normally coloured, but are split for the blue factor. The two young are thought to be a pair.

Cockatiels did exceptionally well, five pairs raising over fifty youngsters without any trouble. A few (seven) lutino Budgies were raised from an albino cock and a female lutino.

For many years I have been an increasingly strong advocate of feeding fruit to all the birds we keep. In addition to the various standard grains (hemp, oats, sunflower, millet, canary) mixed in varying proportions depending upon the season and the bird, I

find that every bird we have seems to look forward to the daily fruit ration.

A most satisfactory and economical method of providing fruit is this method which we have evolved over a period of time. Since most of the smaller birds will only eat a quarter of an apple and orange a day, I cut the fruit into quarters (first being sure to wash the fruit carefully to remove any sprays, etc., growers might have used), and then impale the fruit on a nail in the aviary. This holds the fruit firmly in place and prevents it from being dropped on the floor and being wasted. It is easiest to impale the fruit if you drive the nail in upside down—so that the fruit does not have to pass over the head of the nail. In short—instead of driving the nail from the top of the wood downwards, place the nail so that the point of the nail comes up through the wood, thus giving you a sharp point. This will hold the fruit firmly in place and makes it easy for the birds to eat.

For each cage I drive four nails. Because some pairs fight over food, I drive them in sets of two, placing the two sets a few feet apart. This prevents squabbles—also when the pair has young, more fruit may be desirable, and the added nails make it easy to provide the additional fruit. We have found that when the fruit is cut into quarters the birds find it easier to eat than if it were halved.

The large birds as Kings, Barraband's, and the like, all get one-half of an orange and one-half of an apple each day. The smaller *Neophema*, *Agapornis*, *Psephotus* will do nicely with the quarters.

During the entire year I feed apples and oranges as part of the daily feeding routine. During the summer all the birds receive fresh corn on the cob. With corn it is very important to start out gradually with only small sections of the cob for this precaution will avoid any possible bowel upsets. I have seen such small birds as the finches and the Budgies work very diligently on the corn in order to get the kernels. Summer brings figs and most birds enjoy the figs which I secure from our tree when they are very ripe. The lories will eat the melons as cantaloupe, water melon, and most of the seed-eating birds will like the seeds from cantaloupe, etc., when dried. All the psittacine birds love with a wild passion pomegranates. In the fall these are readily obtainable at very reasonable prices, and I split these open, and the birds will fly all about one when this treat is brought to their aviary. As the tree bears profusely here in California, one could easily grow one's own supply. The one drawback with this fruit is that it is very likely to stain the bird's plumage—and so in no time at all your Barrabands have a reddish breast and some might object to this fruit for that reason.

So many people say to me that they tried fruit and the birds didn't touch it. This is doubtless true—the *Agapornis* will sometimes take a month before they will start to eat the fruit and Bourkes

and Budgies even longer. I just continue to give it *until* they start to utilize the fruit.

A second complaint one frequently hears is that only a small portion is eaten. One should consider the small capacity a pair of Elegants or Bourkes will have. For example, in one aviary this season there were five Nyasas, and they would just barely finish their daily ration of a quarter of an apple and orange. It is quite true that they "wasted" some by not eating all of the apple and orange—but the important thing is not that they did not eat all of it, but instead that their diet was enriched by the addition of apple and orange. Anyone who keeps birds has a duty to see to it that they are kept under the most desirable conditions possible—and possibly the addition of fruit will enrich their life.

At any rate I firmly believe that the aviculturist's chances of rearing young are greatly increased when the pair has had access to fruit during the year. I believe that the use of fruit results in better plumage and healthier adult birds and youngsters—end of sermon !

Greens are a problem too. Branches of trees such as the fruit trees, apricots, peaches, plum, and elm are always appreciated, but it would take a small forest to do this very frequently. I have found that a most satisfactory shrub is the pyracantha, a member of the cotoneaster family. Besides being a mass of bloom in the spring, the red berries are lovely during the fall and winter. Best of all is the fact that all the birds will eat the berries at any time during the year. Here in California the native birds are so fond of them that it is a task to keep enough of them for your aviary birds.

Another green that is very satisfactory is chard. The stalks are relished by all the birds, and it now comes in a very nice cherry red colour, so the plant is not unsightly. When the plants bolt to seed, the birds are very fond of the seeds when still green. This plant is easily grown and quite long lasting.

Bread. Although the staff of life for man, many here consider it of doubtful value for birds. Personally I feel that it is a very good weekly addition to the diet—and a necessity when parents are with young. I use a dark whole-wheat bread which has first been dried in the sun. Over this I pour water (some use milk) and give to the birds with families. It must be a great help to the parents, for they are always there waiting for it when there is a hungry family under hand.

If one is not satisfied with bakery bread it would be a relatively easy task to bake one's own bread using some of the specially prepared health flours now on the market. At least a few people I have talked to are doing this very thing and are quite satisfied with the results.

BREEDING PARROTLET HYBRIDS

By J. DALBORG-JOHANSEN (Odense, Denmark)

In July, 1948, I got a lovely pair of Green-rumped Parrotlets (*Forpus passerinus passerinus*) from Holland. I put them into a small indoor aviary in my birdroom, together with Parrot Finches (Red-headed and Three-coloured) and some Waxbills. They went to nest immediately and reared three youngsters, and after this the Green-rumped bred regularly every year, with two or three broods.

In 1949 I got a pair of Blue-rumped (*Forpus passerinus flavissimus*), but unfortunately they turned out to be two males. I had them for a year and constantly tried to find females, but it was impossible to get any. Then I—in spite of disliking parrot hybrids—mated each of them to a Green-rumped hen. Both pairs were placed in single cages with a nest-box outside, entrance-hole towards the window. They paired up willingly, and a fortnight later both hens were sitting, each on six eggs. All the eggs were fertile, one hatched five, the other four chicks, and all nine were fledged.

The hybrids were all nice and fully feathered birds, the young hens were exactly like their mothers, and the young cocks were less blue on the rump than their fathers, but after their first moult most of them turned out quite as blue. I, and other aviculturists, have picked them up and looked at them side by side with the old cocks and we could not see any difference between them. It is curious, as the pure Green-rumped cocks are easy to distinguish, with the lack of blue on the rump, less blue on the wings, and they are smaller.

Last year we imported some pure Blue-rumped Parrotlets to this country, but it seems to me that the hens of both pure species and the hybrids are all alike. I have discussed this with Mr. C. af Enehjelm, and he is of the same opinion. I should be very glad to hear if anyone in England can see any difference.

After their first broods the two "mixed" pairs had two and three broods with respectively three and three, and three, two, and four youngsters.

Now this year (1953) both pairs are again rearing families, this time they have big clutches—six and seven young ones, and I have heard from some of the aviculturists, who got young "hybrid" pairs here last year, that they have bred too, and their offspring are just as "blue-rumped" as their parents.

Incubation time for both pure Green-rumped and Green-rumped \times Blue-rumped Parrotlets is 21–23 days, the young ones are fledged in about thirty days and can be separated from the parents a fortnight later.

It may interest readers to hear about two other breeding attempts in

my birdroom last year, which unfortunately I can't say were successful. The first was with a pair of Red-faced Lovebirds (*Agapornis pullaria*) that dug a nesthole in an horizontal parrakeet box (completely filled with peatmoss for the purpose) and laid three eggs, which were all fertile, but the young were dead in the shell. It seems to me, that the hen's sitting was not steady enough, she was too often outside the box with the cock, who very seldom went into the nest. But nevertheless, I have not been so near success with this species before.

The other pair, who made an attempt to breed, was a pair of Red-bellied Conures (*Pyrrhura frontalis*). I got them in May, and as I was short of aviaries I placed them in an empty lovebird cage, not more than 60 cm. long, and with a nest-box outside. The birds immediately occupied the nest-box and enlarged the entrance hole with their strong beaks. The birds were very nervous and jumped into the box at the faintest noise in the birdroom, and therefore I saw them very seldom. After a month or so, I thought of transferring them to a better and larger cage, and was indeed very astonished to find the hen sitting. In the nest were four eggs placed on a support of wood-shavings. Two of the eggs were hatched, one young one died nearly at once, but the other one lived for three weeks, but was then killed by one of the parents. Perhaps the cause was the too small nest-box in conjunction with their great nervousness.

As usual with our fascinating hobby, we must say, better luck next time.

* * *

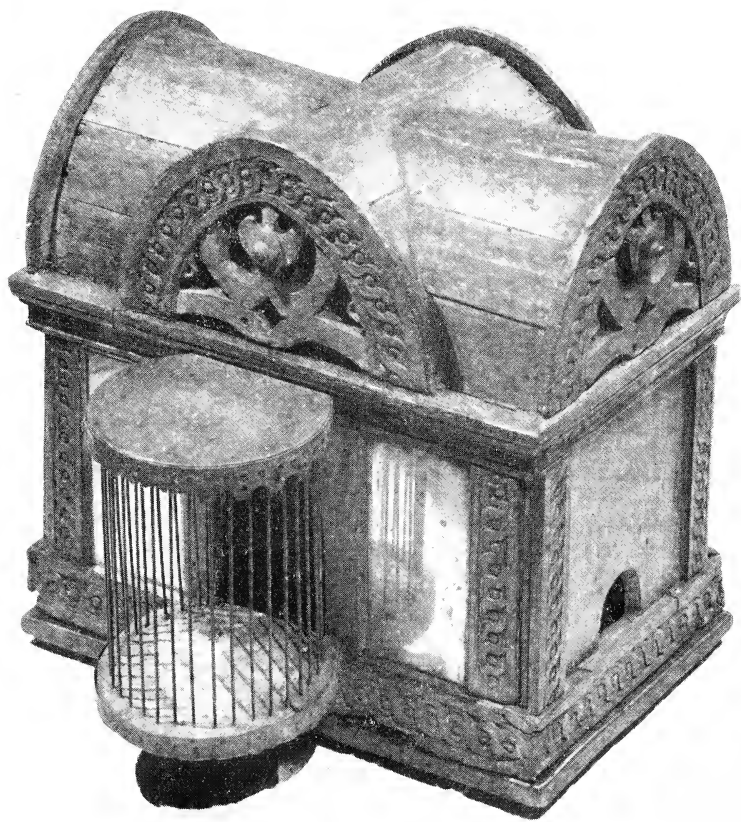
A TUDOR BIRD-CAGE

By A. A. PRESTWICH (Southgate, England)

Our member Martin Luther, the well-known collector of antiques and bygonés, has recently unearthed the bird-cage illustrated, and it has now been added to my collection.

The base measures $17\frac{1}{2}$ inches by 11 inches, and the overall height is 17 inches. The panels on either side of the "balcony" are not glass, as one might expect, but mirrors. Consequently, while inside any bird would have been in very subdued light as, apart from openings in the sides, presumably intended for food and water receptacles, there is no other means of lighting the interior.

Nothing is known of the history of this cage. We assume the period is Tudor, and I would be grateful if any reader could determine the approximate date. I would also like to have suggestions regarding the species most likely to have been kept in it.



A TUDOR BIRD-CAGE.

Copyright]

[A. A. Prestwich

[To face p. 168.



PAIR OF CHESTNUT-FLANKED WHITE ZEBRA FINCHES.

Copyright]

[Alec Brooksbank

A NEW ZEBRA FINCH AND TWO OTHER RECENT ARRIVALS AT KESTON

By EDWARD BOOSEY (Keston, Kent)

As it seemed to me that there has been quite enough of E. J. Boosey in the magazine of late, I intended to have given this number a miss. However, I recently received such an urgent plea for copy from our Editor, saying she was really worried about the next number, that I felt I must try and concoct an article of some kind.

Incidentally, may I add *my* plea that more of our members would contribute to the Magazine, thereby greatly lightening our Editor's load, as well as increasing the general interest of the Magazine? It may be that some people who only keep the commoner species think that members would not be interested in articles about these. In this, however, I believe they are entirely wrong, for while I think people like reading about rarities, I think many probably like even more reading and mentally comparing notes about birds which they themselves keep.

As I could think of nothing else to write about at the moment, I am giving a short account of a new colour-variety of the Zebra Finch, and also of two other recent arrivals at Keston.

A few weeks ago we received a consignment from Australia consisting of ten pairs of a new colour variety of the Zebra Finch, which were sent over as "Marked White Zebra Finches" which describes them tolerably well, but we have called them Chestnut-flanked White Zebra Finches.

They are quite distinct and most attractive, being pure white with the normal form's black markings dark slate-grey, and the white-spotted chestnut patches on the sides of the breast clearly visible, though much paler; in fact they are rather like a Silver Zebra Finch with the silver areas replaced by white. Quite a good idea of their appearance can be obtained from the accompanying photograph of one of our breeding pairs at Keston.

We sold six pairs, and of the four we retained, one hen died and was replaced by a White to find out which is dominant. The latter are sitting, and, of the three pairs of Chestnut-flanked Whites, one pair is sitting; the second pair have young in the nest; and the third pair have a brood of two just fledged; the third young one having fallen, or been thrown, out of the nest at a tender age.

The newly-fledged young are white with greyish heads, which will presumably fade to white when they come into adult colour. As far as we are aware, these are the first Chestnut-flanked Whites to be bred in this country.

Other new arrivals of interest are about a dozen specimens of the

Javan race (*Munia ferruginosa*) of the much better-known White-headed Mannikin or "Maja Finch" (*Munia maja*).

These are the first of the Javan race we have ever had, and they are prettier as well as rather smaller than their better-known relative. The ordinary White-headed Mannikin is, of course, merely deep chocolate-brown with a whitish head and neck and silvery beak, but the Javan race has a silver-grey head and neck, and its appearance is much enhanced by the fact that it has a large bib on the throat and upper breast, of so deep a brown as to appear almost black, which adds contrast, and makes it considerably the more beautiful bird of the two.

We also recently received two specimens of the Speckled-fronted Weaver (*Sporopipes frontalis*)—again a bird we have never had before—although we have often imported its near relative the Scaly-crowned Weaver (*S. squamifrons*).

In *Aviculture*, Vol. I, we read of the *Sporopipinae*: "This group is composed of two little birds, often kept in captivity, which slightly resemble the Waxbills." They are described as follows:

The Speckled-fronted Weaver (*S. frontalis*): "The forehead and top of the black head are finely dotted with white, as well as the slight moustache. The nape and sides of the neck are cinnamon; the body above ashy brown, the cheeks and underparts pale beige, beak and legs whitish. It is about the same size as an Orange Bishop, only with a longer tail."

The Scaly-crowned Weaver (*S. squamifrons*): "Is considerably smaller than the preceding, which it resembles, the only difference being that the general colour is less tawny, the wing coverts and black-brown tail are bordered with white, the crown and the moustache have white lines instead of dots. The habits are the same. This species is more frequently imported than the other and has nested in captivity."

I should have said myself that *squamifrons* is far more often imported than *frontalis*, and that the former has little if any tawny in its plumage, being mainly a white, black, and grey bird.

The better-known of the two, the Scaly-crowned Weaver, is found in the Union of South Africa, while the Speckled-fronted Weaver is a bird of Western and Equatorial Africa, and is found as far north as Timbuctoo in the Sahara Desert country.

Both are lovers of dry conditions, the Scaly-crowned being found particularly in the region of the Kalahari Desert.

Nobody, seeing these birds for the first time, would imagine for one moment that they were Weavers, as their shape and general appearance is entirely finch-like. Yet that they are true Weavers is obvious from the fact that they construct a spherical nest typical of the family, woven of fine grasses and with a short pointed tunnel-shaped entrance.

In conclusion, I thought it would be of interest to record some of the things Alan Lendon, over here from Australia, told me when he recently paid a very welcome visit to our farm.

The trouble is that he is such a mine of information on the subject of Australian birds, that it is difficult mentally to digest all he tells one during a visit consisting of a single afternoon and evening, so if any of my facts are not entirely accurate—that must be my excuse.

Apparently—as perhaps one would only expect—we in this country are far behind in the way of colour varieties of Australian birds.

One of the most interesting things he told me was that he had seen a blue Princess of Wales Parrakeet, which has since been sold for a very large sum to an American. I gather that there is a good deal of fawn-colour in the plumage, the greener parts of which are bluish, while the pink areas on the cheeks and throat are whitish. The bird, however, must be very beautiful, as the large light green patches on the wings are replaced by bright sky blue.

Then there are both lutino and cinnamon Rosellas, of which Lendon told me he had only seen the former. These must be very beautiful, retaining, I think I am right in saying, the red areas as is usually the case with the lutino editions of birds that have red in the plumage. I gather that these are not just isolated specimens, but that both lutino and cinnamon Rosellas are being bred in aviaries in Australia.

Then, too, there are yellow Gouldian Finches (quite distinct, of course, from the rare *yellow-headed* bird), as well as white Diamond Doves. The former sound rather attractive, as it appears that they retain, to a certain degree, the red of the head, and also the purple of the upper breast in contrast to their yellow body-colour. The latter may also be attractive, but I personally have never been able to appreciate an all-white edition of any bird that is so beautifully marked as the Diamond Dove.

* * *

DARENTH-HULME, 1953

By KAY BONNER (Southgate, England)

A few notes on our birds may prove of interest, perhaps more especially to members overseas, as indicative of the psittacines available to English aviculturists.

The main aviaries consist of a range of eighteen houses 4 feet wide, 3 feet deep, with a sloping roof 4 feet high in front and 3 feet at the back, standing on legs, the floor being raised 3 feet from the ground ; attached are 30-foot flights, 6 ft. 6 in. high. The occupants of these aviaries are :—

1. Red-rumped Parrakeets. Only one young one reared this year.
2. Queen Alexandra's Parrakeets. Laid but did not hatch.
3. Stanley Parrakeets.
4. Cockatiels.
5. Diamond Doves, Painted Quail, two pairs of Lineolated Parrakeets. The Diamond Doves reared two young, but did not nest a second time.
6. Pennant's Parrakeets. Four good young ones left the nest early in July during a particularly wet spell of weather. One, unfortunately, apparently struck its head and through lying in wet grass for some hours developed an enteritis. It was taken over to E. N. T. Vane, and he, with his usual diligence, succeeded in hand-rearing it, and it is now quite a nice bird.
7. Abyssinian Lovebirds. Three pairs have toyed with the idea of nesting, but have failed to produce any offspring.
8. Fischer's Lovebirds. A small breeding colony succeeds in maintaining itself, but only just. We did not find this species entirely hardy last winter and there were several losses.
9. Barraband's Parrakeets.
10. Cactus Conures and a single Weddell's Conure ; one of the latter died during the winter.
11. St. Thomas Conures, five.
12. A Barnard's Parrakeet male and an Indian Ringneck female.
13. Golden-mantled Rosellas.
14. A very mixed aviary—a pair of Blossom-headed Parrakeets, young Red-rumped and Pennant's Parrakeets, a Delamere's Whydah, a Junco, Blackbird, Linnet, and small Seed eaters.
15. Barraband's Parrakeets.
16. Crimson-winged Parrakeet male and Pennant's Parrakeet female.
17. Six Red-bellied Conures. One pair succeeded in rearing three young—the first, we believe, since W. Shore-Bailey's first success in 1924.

18. A pair of Cissas.

Running along the back of the shelters there is a service passage and wilderness aviary, giving a flight 72 feet long and 10 feet wide. The occupants are three pairs of Purple-headed Glossy Starlings and a pair of Crested Bronze-winged Pigeons. The Starlings have shown not the slightest inclination to breed. The Pigeons, on the other hand, were only too anxious to do so. In spite of continual interference on the part of the Starlings they eventually managed to rear two young.

An escape passage and planted aviary, 7 ft. 6 in. wide, stretches along the front of the flights. The sole tenants of this are, at present, an aged and somewhat decrepit pair of Peach-faced Lovebirds.

An adjoining aviary, 24 feet by 18 feet, contains a colony of about two dozen Red-faced Lovebirds. I would have liked to describe it as a breeding colony, but such is far from being the case. There has been a certain amount of excavation, but not a single egg.

The chalet-type bird-room houses a pair of Vane's 1951 Noble Macaws ; two pairs of Golden-winged Parrakeets (*Brotogeris chrysopterus*) ; a pair of Canary-winged Parrakeets ; a pair of Maximilian's Parrots ; an Orange-bellied Senegal Parrot (*Poicephalus senegalus versteri*) ; and half-a-dozen Red-faced Lovebirds, mostly with clipped wings. A house, 10 feet wide by 6 feet, with flight attached, contains a pair of White-bellied Caiques.

We keep a number of pairs of the commoner Pheasants—Golden, Silver, Amherst, Chinese, Reeves'. The nine pens are mostly 22 feet wide by 17 feet, but there is one 22 feet by 42 feet. The shelters are made of wattle hurdles and look quite attractive. Pigeons share most of the enclosures and live in perfect amity with the pheasants, if not with themselves. We have Bronze-winged, Brush Bronze-winged, Triangular-spotted, and, of course, Java and Barbary Doves. All these have bred successfully with the exception of the Triangular-spotted, whose chief delight appears to be fighting. When, having wintered together, two pairs were not separated sufficiently early in the spring a battle-royal ensued during which one was killed and another severely injured. A pair, however, now has two young ones ten days old.

Having suffered depredation by semi-feral cats we had Wolseley Electric Fencing installed round the entire grounds and this has proved a very satisfactory deterrent.

Finally, the house parrots consist of a pair of Greys, three Senegals, a Rüppell's, and a Brown-headed (*Poicephalus cryptoxanthus*).

LONDON ZOO NOTES

By JOHN YEALLAND

Of the birds received during the past two months, three are new to the collection. They are a White-breasted Warbling Finch (*Poospiza melanoleuca*) ; a Sunda Islands Myna (*Gracula venerata*), and the Uganda Green-headed Sunbird (*Cyanomitra verticalis viridisplendens*).

The first is an interesting bird with rather the appearance of a tiny Shrike and of an inquisitive disposition. The Myna is of the genus formerly known as *Eulabes* and quite closely related to the familiar Nepal and Southern Hill Mynas. The Sunbird is the eastern form of the Green-headed of tropical West Africa. This specimen was presented, together with five Red-chested Sunbirds (*Nectarinia erythroceria*), by Mr. D. Roberts of the East African Fisheries Research Organization in Uganda. A Kingfisher (*Alcedo atthis ispida*) has also been presented.

A Malayan (or Malaccan) Peacock Pheasant (*Polyplectron malaccensis*) and a Malayan Argus (*Argusianus argus*) have been presented by the Chief Game Warden of Malaya. A Funereal Cockatoo (*Calyptorhynchus funereus*), the first to be exhibited since 1931 ; a pair of the pretty Cuban Blue-headed Pigeons, or Quail-doves (*Starnoenas cyanocephala*), and a Pink-headed or Jambu Fruit Pigeon (*Ptilonopus jambu*) have been received in exchange.

The King Penguin hatched in July continues to thrive ; the 1952 bird is now like the other adults except for being paler orange on the bill, throat, and sides of the head. At the Quarterly General Meeting in July Head Keeper Jones was presented with the Society's bronze medal for his skilful work in the rearing of this Penguin. He is the first Keeper of birds to receive this award.

A second Schlegel's Dove ; two Lesser Black-backed and a Herring Gull ; two Quaker Parrakeets ; three Chukor Partridges ; three Vieillot's Fireback Pheasants ; three Bahama Pintails ; six Carolina and what is believed to be a Chiloe Wigeon \times Carolina have been bred in the Gardens.

The Snowy Owls hatched one quite strong chick, but it did not long survive. The Gaboon Forest Robin collected in British Cameroon during 1948 by Mr. Webb has laid a further two eggs, so it may be that two is the normal clutch. This bird is fairly common in the Cameroon forest, but practically nothing is known about its nesting.

BRITISH AVICULTURISTS' CLUB

The thirty-ninth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 9th September, following a dinner at 7 p.m.

Chairman : D. Seth-Smith.

Members of the Club : Mrs. J. R. Alderson, Miss P. Barclay-Smith, The Duke of Bedford, Miss K. Bonner, W. Brain, G. T. Clark, Mrs. G. T. Clark, T. R. W. Crewes, T. H. Evans, A. Ezra, J. F. M. Floyd, Miss S. A. Fothergill, J. C. Garratt, Miss D. Gask, T. Goodwin, F. E. B. Johnson, Miss E. M. Knobel, Miss M. H. Knobel-Harman, P. H. Maxwell, H. Murray, S. Murray, K. A. Norris, A. A. Prestwich, J. H. Reay, D. M. Reid-Henry, Professor E. Sprawson, R. A. Taylor, E. N. T. Vane, C. S. Webb.

Guest of the Club : Dr. Alan Lendon.

Guests : Dr. K. W. Awlwin-Gibson, J. Bailey, C. Bates, Mrs. C. Bates, P. Bates, W. J. C. Frost, Miss H. Gentry, Sir Crawford McCullagh, P. Marshall, Mrs. S. Murray, J. A. Norris, Mrs. J. A. Norris, Mrs. J. H. Reay, J. Robinson, Mrs. D. Seth-Smith, Mrs. R. A. Taylor, N. S. Walker, Mrs. C. S. Webb.

Members of the Club, 30 ; guests, 19 ; total, 49.

The Chairman, opening the meeting, said it gave him very great pleasure to welcome Dr. Alan Lendon, already so well known to members on account of his numerous writings in the Magazine ; Sir Crawford McCullagh, from Belfast ; and Mr. and Mrs. Cecil Webb, from Dublin.

Dr. Lendon conveyed greetings on behalf of aviculturists in South Australia, and then gave a very interesting description of present-day aviculture in Australia generally, but more particularly as practised in the South.

The next meeting of the Club is on **11th November, 1953.**

ARTHUR A. PRESTWICH,

Hon. Secretary.

* * *

NEWS AND VIEWS

T. R. Holmes Watkins has had a particularly good breeding season, rearing many Splendid Grass Parrakeets, three Kings, and Queen Alexandra's, Pennant's, and Crimson-winged Parrakeets.

* * *

The Severn Wildfowl Trust Expedition, under the leadership of Peter Scott, has now returned from Iceland. While there more than 9,000 Pink-footed Geese were marked.

Miss P. Barclay-Smith represented the Society at the XIVth International Congress of Zoology, held at Copenhagen, 5th-12th August, 1953. Sir Edward Hallstrom also attended, and while in London showed a series of films at the Zoological Society of London.

* * *

K. A. Norris has bred the Mountain Bluebird (*Sialia corrucooides*), three reared. This is only the second time this species has been bred in Great Britain—the first being the President's success in 1938, when of five young hatched one was reared.

* * *

Dr. Alan Lendon writes : " W. Turner has informed me that A. E. Leer, of Manly Vale, near Sydney, has recently bred four young Ground Parrakeets (*Pezoporus formosus*), and has given two of the young birds to Sir Edward Hallstrom. The latter bred the Red-eared Conure (*Pyrrhura cruentata*) last year."

* * *

In a recent letter E. J. Boosey writes : " A young pair of Pileated Parrakeets have two young in the nest, and our wonderful old breeding pair have four young ones just fledged, which makes altogether nineteen during the four seasons they have been here—6, 3, 6, and 4."

* * *

E. J. Boosey has bred a lutino " Alexandrine " Parrakeet of nearly pure blood, just a small percentage of Ring-neck. Incidentally, a breeder living in Staffordshire, not a member of the Society, claims to have been breeding lutino Alexandrines for the past five years. The Hon. Secretary would be grateful for any confirmatory information.

* * *

Arthur Lamb has bred a hybrid Blue-fronted Amazon \times Yellow-cheeked Parrot. The latest report from Lamb is that " the young parrot is still alive and doing well. It is now seven weeks old and fully feathered, and quite as large as its mother. It is all green except for a blue forehead ; its cheeks are a lime green, and its body the true Amazon green. I am just wondering how much longer it will stay in the nest ".

* * *

H. Murray reports : " I have had three Green Cardinals fly to-day (5th July). They are only about twelve days old and I would have been happier if they had stayed in the nest for a few more days. This is the second nest that these birds have had this year. The cock killed the young of the first nest at three days old and drove the hen to nest

again. When the hen started to lay the cock died of a stroke, and the hen sat and has reared so far on her own. I realize that the birds are a long way from being reared but it is interesting all the same." Murray has also bred the common Grey Waxbill. He writes: "Only one young bird flew as far as I could see, but it is possible that more came out last Friday (31st July) in the rain and got lost."

A. A. P.

* * *

CORRESPONDENCE

COLLECTING THE SCARLET-TUFTED MALACHITE SUNBIRD

It has been pointed out to me that my account of *Nectarinia johnstoni* on Mount Kenya might have given the impression that the few specimens I collected were caught while there were still young ones in the nests.

I should therefore like to explain that at the time when I caught the birds, the nesting was, to the best of my belief, at an end in that particular area, and the fledgelings independent of their parents.

REGINALD BLOOM.

c/o ZOOLOGICAL SOCIETY OF LONDON,
REGENT'S PARK, N.W. 1.
11th July, 1953.

GREEN GLOSSY STARLINGS

I was interested in an article in the March-April Magazine on African Green Glossy Starlings. As I have kept and bred them since 1932, I can confirm that the orange-eyed birds and the yellow-eyed birds are the same—as my original pair both had orange eyes. Of eight that I have reared to maturity, seven have yellow eyes and only one has orange eyes. I found these birds extremely easy to breed, and rear up to the time of leaving the nest, and *extremely hard* to rear to maturity.

Over the years I must have had upward of fifty leave the nest strong and well, and I have only reared eight to maturity. The story is always the same—about a week after leaving the nest the young ones refuse all food. The parents frantically try to feed them, thrusting the food at their beaks, bodies, and even legs. In three or four days all such young are dead. On one occasion I had five magnificent young leave the nest, looking extremely strong, and flying and perching strongly; in three days they were feeding themselves—on white ants, grasshoppers, and mealworms. In a fortnight *all* were dead. In exactly the same manner as all the others. I have always thought that this extremely distressing sequence was due to some food lack. But what it is, I have *no idea*. My Starlings are fed on a good soft mixture with fresh grated hard-boiled egg. They have a good supply of insects, especially when breeding—white ants, mealworms, grasshoppers, crickets, cicades, etc. They only give the young live food. They have access to fruit of several kinds, but I have never seen them eat it. Of course they also have access to grit and calcium.

Once I get them through the first moult they are *extremely hardy*. In fact, I still have my original cock, and he was mature in 1932.

Another curious fact is that I have never lost a young one in the nest—but always about a week after leaving.

I would be very grateful if anyone could suggest what is wrong.

6 BARKER STREET,
NEWCASTLE,
N.S.W.,
AUSTRALIA.

R. E. B. BROWN.

PARRAKEET EYE DISEASE

Mr. Hastings' account of his experience of diseased eyes in newly-imported insectivorous birds was most interesting. The extraordinary promptitude with which he effected cures by dosing them with cod liver oil well exemplifies the amazing effect of giving adequate doses of Vitamins A and D to vertebrates which have passed through a period of hardship and malnutrition such as I fear newly-imported birds very often have.

With regard to the application of this principle to "parakeet eye disease" however, the case is somewhat different. Doubtless shortage of Vitamin A in newly-imported stock renders them more susceptible, and I did make this point in a letter to the AVICULTURAL MAGAZINE published in the September-October issue of 1952. I was at first particularly inclined to suspect Vitamin A deficiency, as Xerophthalmia is known to occur in poultry in some parts of Australia—probably due to some local peculiarity in their feeding. I was soon convinced, however, that it is at the most a secondary factor. In the first place—the first bird I treated, a hen Barraband, was given very large doses of Vitamin A when she first came under my care, with some improvement in her general health but none in her eyes. Secondly, all the others received a Vitamin supplement (containing Vitamins A, B-complex, C, and D) in the drinking water, which is a routine measure in my bird room for all newly-imported stock, and all birds kept indoors in winter. Their eyes, nevertheless, only improved when treated with the antibiotics aureomycin and chloromycetin, and relapses occurred if I stopped this treatment too soon.

Xerophthalmia can be rapidly cured by large doses of Vitamin A. It cannot be cured by any other means whatsoever. The birds under my care were *not* improved with the Vitamin A they had, but *were* cured by other means. I think these facts eliminate Xerophthalmia fairly conclusively.

The opportunity of treating more cases is unlikely to arise in future because of the parrot ban, but I am looking after at present two lovely cock Barrabands, one English aviary-bred, which contracted the disease in an aviary by contact with a newly-imported diseased bird. One, the worst case I have ever seen, had a panophthalmitis on arrival; that is, infection of the globe of the eye itself as well as the tissues of the orbit. The eyeball actually burst shortly after I received it, and I expected the bird to die. It did not, however, and seems likely to recover, albeit with one blind eye. The other bird which had gross disease of both eyes is cured. As they came from an aviary, I gave neither any Vitamin supplement, but fed them on seed and green food only.

"Parakeet eye disease" differs from the ordinary septic conjunctivitis of other birds in its slow and insidious onset, its long duration, and its extreme resistance to treatment. The other odd thing is its restriction to a few species of Australasian Parrakeets. I have only seen or heard of it in Crimson-Wings, Kings, the Polytelines, Bourkes, and the green Grass Parrakeets. Broadtails appear to be immune, and I have never heard of it in the Asiatic, African, or South American parrots.

THE WHITE HOUSE,
5 PORTSMOUTH ROAD,
KINGSTON-ON-THAMES.

F. B. LAKE.

WHITE-BREASTED TOURACO

Mr. de Goederen, in his interesting account of the new Bird House at Wassenaar, says that some White-breasted Touracos were labelled "*Touraco, Gymnoschizorhis personata*".

I visited Wassenaar early in June and Mr. Louwman kindly took me to see the Louise Hall where there was a specimen of *G. personata*—and there is another in Rotterdam Zoological Gardens. The cumbersome common name of this handsome Touraco is the Brown-faced Goaway-bird. Sclater considers that there are three forms of this genus; Peters recognizes only two, *G. personata* of Southern Abyssinia, and *C. p. leopoldi* ranging from Eastern Belgian Congo and Uganda southward to Lake Nyasa.

J. YEALLAND.

ZOOLOGICAL SOCIETY OF LONDON,
REGENT'S PARK, N.W. 1.

CANDIDATES FOR ELECTION

- W. J. BOYD, 15 Unity Street, Carrickfergus, Belfast. Proposed by Sir Crawford McCullagh.
- Captain C. N. CLAYDEN, The Middlesex Regt., Inglis Barracks, Mill Hill, N.W. 7. Proposed by F. E. B. Johnson.
- J. O. D'EATH, The Grove, Hadley, Barnet, Herts. Proposed by R. E. Heath.
- Mrs. G. DE BEAUMONT, Blairlogie House, Menstrie, Clackmannanshire, Scotland. Proposed by J. Gray.
- Colonel H. B. FINCH, "Revesby," Hutton Road, Ash Vale, Surrey. Proposed by A. A. Prestwich.
- L. F. GARDENER, 10 New Way, Pinelands, Cape Town, South Africa. Proposed by Miss K. Bonner.
- R. N. GILBERT, 324 Hampton Avenue, Salt Lake City, Utah, U.S.A. Proposed by Boyd Shaffer.
- A. GILLAN, 66 Broomhill Road, Aberdeen, Scotland. Proposed by Miss K. Bonner.
- R. H. GRANTHAM, 13 St. Wilfrids Road, New Barnet, Herts. Proposed by Miss K. Bonner.
- A. V. GRIFFITHS, Bryn Awel, Llandyssul, Cards. Proposed by Miss K. Bonner.
- Corporal M. LEE JONES, 915th Medical Co. Ambulance (Sep), A.P.O. 175, U.S. Army, Europe. Proposed by Miss K. Bonner.
- K. N. MADSEN, Bøgebakken 2A, Frederikssund, Denmark. Proposed by A. A. Prestwich.
- W. M. SANDS, 12 Rothbury Gardens, Adel, Leeds 6. Proposed by Miss K. Bonner.
- K. STEVENS, 45 Britwell Road, Wylde Green, Birmingham. Proposed by Mrs. H. G. Alderson.
- N. S. WALKER, Farthing Green, Farthing Green Lane, Stoke Poges, Bucks. Proposed by Miss D. Gask.
- R. I. WHITE, 786 Geary Street, Apt. 401, San Francisco, Calif., U.S.A. Proposed by A. A. Prestwich.
- Dr. W. WINDECKER, Zoologischer Gartens, Riehler Str 173, Koln, Germany. Proposed by A. A. Prestwich.

NEW MEMBERS

The eleven Candidates for Election, proposed in the July-August, 1953, number of the AVICULTURAL MAGAZINE, were duly elected members of the Society.

CHANGES OF ADDRESS

- W. BARKER, to College Road, Stanthorpe, Queensland, Australia.
- Mrs. J. DALZIEL BIRRELL, to Green Corner, Pen Selwood, Nr. Wincanton, Somerset.
- BRIAN BURGIS, to Carroll Crescent, Grange, Brisbane, Queensland, Australia.
- Dr. R. E. EVANS, to 12 Kirklee Terrace, Glasgow, W. 2.
- H. C. EVERETT, to 7932 Old River Road, Forestville, Calif., U.S.A.
- PERCY GLOVER, to Oparaeana Street, Ngongotaha, Rotorua, New Zealand.
- P. SWANEPOEL, to Central Service Station, Warden Street, Harrismith, O.F.S., S. Africa.
- P. W. TEAGUE, to Rowlestone, Teignmouth Road, Dawlish, Devon.
- Major D. WILLIS-FLEMING, to "Helvetic," Plymouth Road, Totnes, Devon.

CHANGE OF STYLE AND ADDRESS

- Miss M. SÉE, to Mrs. Klaasen-Sée, Papaverstraat 42, Bussum, Holland.

MEMBERS' ADVERTISEMENTS

The charge for Members' advertisements is ONE PENNY PER WORD. Payment must accompany the advertisement, which must be sent on or before the 15th of the month to A. A. PRESTWICH, 61 CHASE ROAD, OAKWOOD, N. 14. All members of the Society are entitled to use this column, but the Council reserves the right to refuse any advertisements they consider unsuitable.

WANTED

Overseas member wishes to purchase a cock lutino Ring-necked Parrakeet; must have a rose ring.—Offers to HON. SECRETARY, 61 Chase Road, Oakwood, N. 14.

FOR SALE

1953 hand-reared Barrow's Golden-eye, Eider, Mandarin, Carolina, and other species ducks.—C. T. DALGETY, Radwell Mill, Baldock, Herts.

WATERFOWL RINGS

Members are reminded that the Society's special blue rings are always available. All Waterfowl in collections, both public and private, should carry them.

Size.		Price per dozen, post free.	
		s.	d.
2-3	Teal	2	3
3	Wigeon	2	6
4	Mallard, Pintail, etc.	2	9
4-5	Smaller geese	3	6
5	Greylag	4	0

Requests for rings should be addressed to the Hon. Secretary, Avicultural Society, c/o Zoological Society of London, Regent's Park, London, N.W. 1, from whom all particulars can be obtained.

POST-MORTEM EXAMINATIONS

Attention is drawn to the following rules :—

Rule 1.—A short account of the illness should accompany the specimen. All birds to be sent as fresh as possible to Mr. W. Lawrence, The Zoological Society of London, Regent's Park, London, N.W. 1.

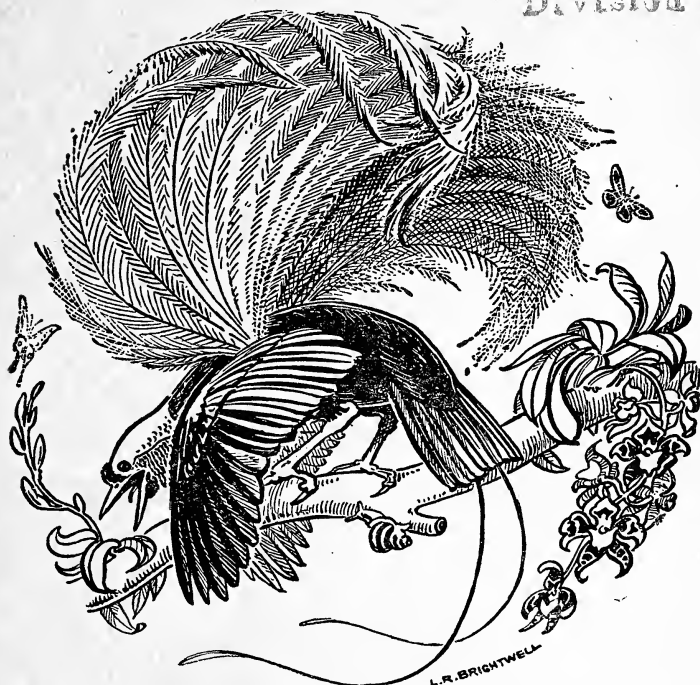
Rule 2.—A fee of 10s. and a stamped addressed envelope MUST be enclosed with the bird.

Rule 3.—No body or skin of any bird will be returned under any circumstances whatever.

ARTHUR A. PRESTWICH,
Hon. Secretary.

AVICULTURAL MAGAZINE

Division of Birds



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THE AVICULTURAL SOCIETY

Founded 1894

President : A. Ezra, Esq., O.B.E.

Hon. Secretary and Treasurer : A. A. Prestwich, 61 Chase Road,
Oakwood, London, N. 14.

Assistant Secretary : Miss Kay Bonner.

Membership Subscription is £1 per annum, due on 1st January each year, and payable in advance. Life Membership £15. Subscriptions, Changes of Address, Names of Candidates for Membership, etc., should be sent to the Hon. Secretary.

THE AVICULTURAL SOCIETY OF AMERICA

President : M. Jean Delacour.

Secretary-Treasurer : Ivo Lazzeroni, 5034 Templeton Street, Los Angeles 32,
California, U.S.A.

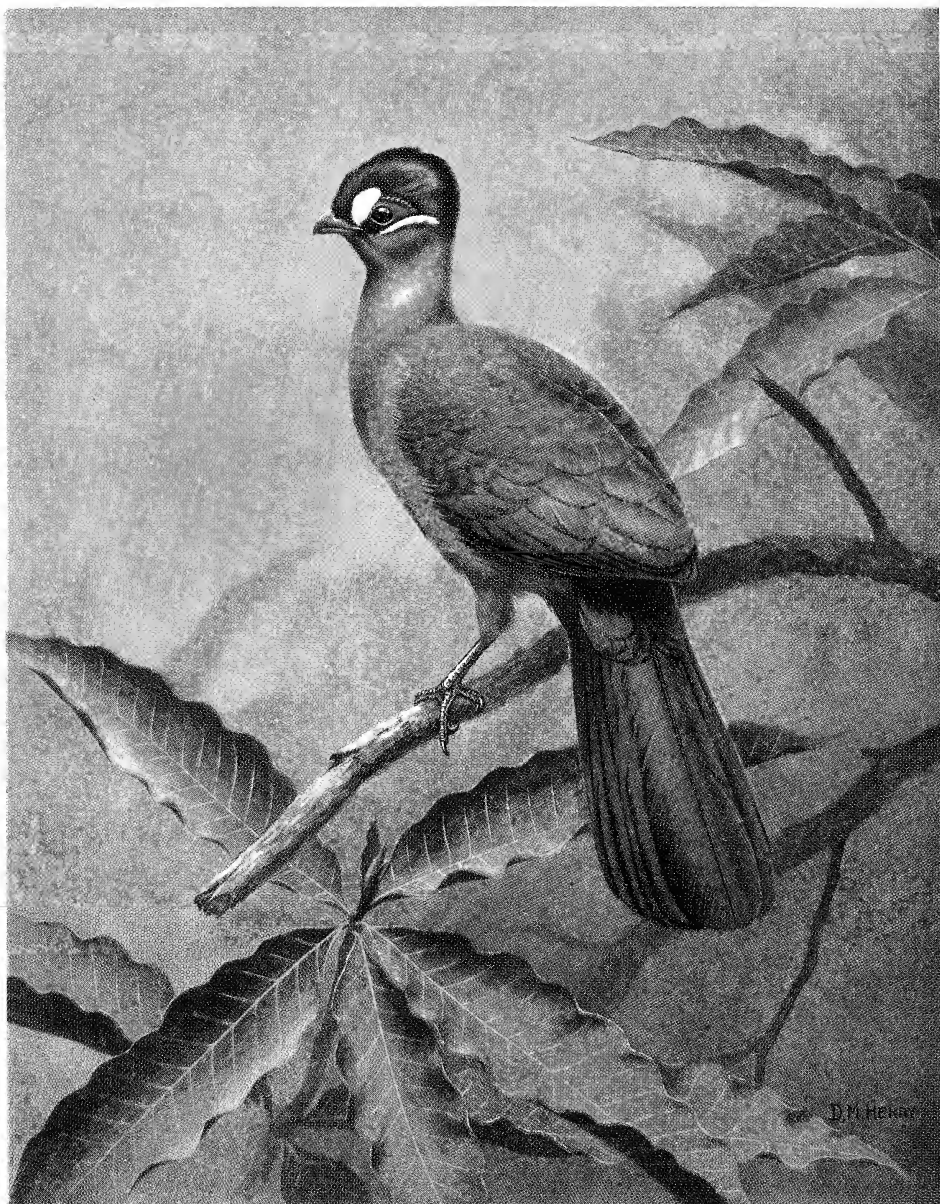
The annual dues of the Society are \$3.50 per year (foreign dues \$3.75 or £1 7s.), payable in advance. The Society year begins 1st January, but new members may be admitted at any time. Correspondence regarding membership, etc., should be directed to the Secretary-Treasurer. Members of the Avicultural Society may become members of the Avicultural Society of America on payment of \$1.00 per year.

THE AVICULTURAL MAGAZINE

The Magazine is published bi-monthly, and sent free to all members of the Avicultural Society and Avicultural Society of America. Members joining at any time during the year are entitled to the back numbers for the current year on the payment of subscription. All matter for publication in the Magazine should be addressed to :—

The Editor : Miss Phyllis Barclay-Smith, 51 Warwick Avenue, London,
W. 9. Telephone : Cunningham 3006.

The price of the Magazine to non-members is 5s., post free, per copy, or £1 10s. for the year. Orders for the Magazine, extra copies and back numbers (from 1917) should be sent to the publishers, Stephen Austin & Sons, Ltd., 1 Fore Street, Hertford, England. Telephone : Hertford 2546-9.



HARTLAUB'S TOURACO.

AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY
AND THE AVICULTURAL SOCIETY OF AMERICA

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NOVEMBER-DECEMBER, 1953

HARTLAUB'S TOURACO

(*Turacus hartlaubi*)

By CECIL S. WEBB (Dublin, Eire)

Hartlaub's Touraco is confined mainly to the Kenya Highlands but extends into Tanganyika Territory on Mt. Kilimanjaro and Mt. Meru. In Kenya its chief haunts are the forested slopes of Mt. Kenya, Mt. Elgon, and the Aberdare Mts. up to 10,000 feet, and it is also not uncommon in the wooded ravines that extend from these mountains into the highland plains. It was in one of the latter that the writer first saw this Touraco in the Aberdare range at an altitude of 8,500 feet. This was in 1933 at which time Hartlaub's Touraco was unknown to aviculture.

This bird is so beautifully portrayed in the accompanying plate that it needs no description but those familiar with the Purple-crested Touraco (*Gallirex porphyriolophus*) will notice a marked resemblance if the white facial markings are excluded.

To capture the atmosphere in which Hartlaub's Touraco lives it is as well to take a glance at the Kenya Highlands, its inhabitants, and climate. Here, on the lower slopes of the Aberdares, the equator is near by; the days are hot but the nights, owing to the high altitude, become very cold, frequently showing white frost by the early morning. The air is dry and invigorating and so the daily extremes in temperature cause little or no discomfort. However, in the rainy season (June and July) when the highlands are shrouded in mist for days on end, it is said to be distinctly gloomy and miserable.

The forested ravines, which descend to a considerable depth below the level of the surrounding country, were brought into being, as was the Great Rift Valley, by a shrinkage in the earth's crust. To descend into one of these from the surrounding grassland is a strange experience, for one is suddenly plunged into a totally different faunal and floral

zone. When I was first there, from early January to the end of April, the highland plains were alive with migrants, the most noticeable being Wheatears and Yellow Wagtails (*Budytes flavus*), there being several distinct races of the latter from widely separated localities but mingled together here on common ground. Male Jackson's Whydahs (*Drepanoplectes jacksoni*) could be seen bobbing up and down in the grass like black balls of fluff doing their nuptial dance, and here and there, where there was a patch of flowering leonotis in an open situation, one might get a glimpse of the exquisite Kenya Malachite Sunbird (*Nectarinia famosa aeneigularis*).

On approaching the ravine more leonotis, near cover, was in evidence and here were seen two gems of the sunbird world—the Golden-winged (*Drepanorhynchus reichenowi*) and the Tacazzé Sunbird (*Nectarinia tacaze*)—both looking indescribably beautiful in the tropical sunlight.

On entering the forest a remarkable drop in temperature was evident and before proceeding very far magnificent specimens of wild olive and podocarpus trees, their branches festooned with masses of long pendant usnea, came into view. A rustle in the branches indicated a troop of Colobus Monkeys (*Colobus polykomos matschiei*) feeding quietly on leaves or berries or even on the usnea with which their long-haired robes harmonized so perfectly. Occasionally one would see a small party of White-headed Wood Hoopoes (*Pheniculus bollei jacksoni*) busily probing in crevices in the bark for insects, and more rarely a Narina Trogon (*Apaloderma narina*) flitting silently past to some branch, there to remain like a statue until the spirit moved it on again.

If one were quiet enough the sprightly and gay-coloured White-starred Bush Robin (*Pogonocichla stellata*) would almost certainly be seen hopping in the undergrowth. In more open situations were clumps of Balsam (*Impatiens*) with large Shield-bugs piercing their stems for plant juices.

Frequently when I was enjoying all these things the comparative calm of the ravine was broken by the loud croaking call-notes of Hartlaub's Touraco. This challenge was answered by another bird of the same species some distance away and yet another more distant until the whole ravine was echoing with their calls. After a minute or two of this outburst the strange forest atmosphere suddenly would return to normal.

Touracos, like most fruit-eating birds in the tropics, travel considerable distances in search of food, visiting certain fruit-bearing and berry-bearing trees scattered far and wide. They travel usually in pairs (though several pairs may be seen feeding together in one large tree) doing a regular daily round. One tree that I watched was visited regularly by two pairs of Hartlaub's which used to arrive on the scene by sunrise, remain about fifteen minutes feeding, and

then disappear for the day, returning to the same tree towards 5 p.m. for a final feed, presumably on the way back to their roosting-place. I have noticed these regular visiting hours with other Touracos, but here in the Aberdares they are upset during the olive season. In February and March food suddenly becomes so plentiful that there must be tons to the acre, and search for it becomes unnecessary. As if by magic there is a sudden invasion of Masai Red-headed Parrots (*Poicephalus gulielmi massaicus*), Olive Pigeons (*Columba arquatrix*), and Sharpe's Starlings (*Pholia sharpei*) so that the olive trees are alive with birds all feasting on the oily berries so lavishly supplied by nature.

The Touracos could be seen to regurgitate the stones once the fruit had been digested. When the olive season was nearing its end the pigeons, parrots, and starlings disappeared as quickly as they came, leaving the Colobus Monkeys and the Touracos in peace.

Hartlaub's Touraco, like all the other members of the family, is perfectly adapted for an arboreal existence, its partly zygodactyl feet enabling it to run along branches with the greatest of ease. Also it bounds from branch to branch more like a monkey than a bird. If temporarily deprived of the power of flight through loss of its primaries it will not be greatly handicapped if in forest. It will run through the branches and jump from tree to tree with great agility and will never panic and fall if chased.

The tail feathers come out remarkably easily (but grow again rapidly) which is surely a means of protection. It is by no means easy to catch hold of a Hartlaub's Touraco by the body for it instantly arches its wings and bounds strongly forward deflecting the hands to its rear end and so one is left holding merely a bunch of tail-feathers! This could easily happen to predators.

By setting a flue net with large pockets in a wild olive tree I was able to capture six Hartlaub's Touracos. These I kept in a small aviary until two days before my departure, when a native boy left the aviary door open allowing four to escape. However the remaining two were introduced to England in May, 1933.

Since the second world war a number have been sent overseas from Kenya by certain animal catchers, and a pair found its way to the London Zoo where they have been much admired. The call of the Hartlaub's Touraco does not differ greatly from that of the other Touracos of the same genus. Those who have become familiar with this sound in the wilds of Africa will be carried back there body and soul on hearing it in some Zoological Gardens.

BREEDING NOTES FOR 1953 AT WOBURN.

By THE LATE DUKE OF BEDFORD (Woburn, Beds, England)

It seems to have been the rather general experience that the past winter which, while not abnormally cold, certainly began abnormally early, and was very long and unpleasant, has had an adverse effect on breeding results this summer.

Rheas apparently found the winter so depressing that neither the three white birds which are now getting very old, nor the three grey ones which are young adults, succeeded in producing a single egg. Indeed the grey cock showed much less sign of being in breeding condition this season than he did last, when he was only two years old.

With waterfowl the season has been a rather poor one, but not so bad as 1952, which is the worst I ever remember. Ten Red-breasted Geese were reared and one young Emperor Goose. The latter was killed by a mysterious enemy which pecked out its eyes, without doing it any other injury, twenty-four hours after it was released as an almost fully-fledged bird among peaceful, moulting companions. The strange thing is that a similar fate overtook a young Magellan gander at the same stage of development about the same time last year, and a few years ago some adult Barnacle Geese suffered a similar fate. The Barnacles, when they were attacked, were far from the water, but the Emperor and Magellan were on the ponds. There seem to be no Crows or Magpies about at the present time, nor are there any predaceous fish which, if they injured one bird nearly adult, would also have inflicted injury on others which were adult but were not noticeably larger.

Of Barred-breasted Magellan Geese I now have only a single female left. She apparently nested away from the Park, and as usual had her eggs or young destroyed by vermin. In old days, with no more efficient keeping, it was extremely rare for broods of this family to come to grief. Now, however, it is quite the exception for any young to survive, the only Ashy-headed goslings reared being a few that were caught up and put under hens as soon as their parents had brought them to the water.

Snow Geese, Lesser Snow Geese, and Lesser White-fronted Geese, which for some years have not nested in the fox-proof enclosure in which they had been placed, were turned out in the Park for the summer as it is rare for foxes to cause trouble except during the winter months. None of the birds, however, nested, and spent most of the time wandering about trying to reach an Arctic breeding ground on foot!

A fair number of Carolina Ducks and Cinnamon Teal have been hand-reared. It is unfortunate that the latter pretty little bird usually falls a victim to coccidiosis when kept in the only enclosure which is

reasonably safe from vermin and that the males, when in breeding condition, appear to be so spiteful towards their own kind. Full-winged, they do not appear to stay.

Coming now to the members of the Parrot family, neither pair of Roseate Cockatoos made any serious attempt to nest, and I have heard of other reliable breeding pairs in other hands behaving this year in a similar fashion. The Gang-Gang Cockatoos reared one young male instead of their usual two children.

The old pair of Brown's Parrakeets, which reared a good brood of five the first year I had them, but lost their young at ten days the two following years, this season got no further than inspection of nest-boxes. A short while ago I found the hen Brown's on the floor of the aviary shelter holding her head on one side, and evidently seriously injured as a result of some fright she had sustained during the night. I expected to lose her, but after some days she fortunately recovered.

For a second hen imported last year who proved an extremely difficult bird to acclimatize, I managed to secure a mate in late summer. Although she appeared to be very much in breeding condition at the time, and the pair took to one another at once, she too, got no further than occasionally examining a nest-box until it was too late in the year for it to be any use to encourage a breeding venture. The new cock had been mated to another hen before I received him, and in order to avoid complications due to the fidelity common in this species and some other Broadtails, I took precautions before introducing him to his new mate to induce in the cock's mind the conviction that his former marriage was a thing of the past with no possibility of any renewal. After being kept by himself for a few days before he was sent to me, I kept him also by himself for some days in a cage in the strange bird-room. After giving him ample time to become rather bored and lonely, and to forget his former home and associations, I had him brought out in his cage to the hen's aviary and put down quietly just outside it. The introduction went off perfectly. She greeted him with enthusiasm, but also with the modesty which a cock Broadtail expects of his prospective mate, and when it was obvious that he too was favourably impressed we turned him out in the aviary as quietly as possible.

The old breeding pair of Rock Peplars hatched five of their six eggs and reared a very healthy family—not a bad performance in view of the fact that the cock nearly died of coccidiosis last autumn and was extremely ill for a long period.

One of the two young birds I trained to fly at liberty was lost through a curious and unlucky accident. I had three odd hens untrained as liberty birds and, having sold one of them, told the aviary attendant to catch her up. This he did, but failed to notice that the catching net had a hole in it. She discovered it while being

carried down to the bird-room, and shortly afterwards picked up one of the two liberty birds and went away with him, neither being heard of again. It was fortunate that I did not lose both youngsters.

The old pair of blue Indian Ringnecks again did well, rearing four young ones. This season the cock, always a rather queer-tempered individual, got bored with his entire family soon after the young had left the nest, and had to be removed to prevent him doing them an injury. A young pair of two-year-old blues seemed to be on the point of nesting when, through the agency of "X" or some mysterious and unlucky accident, the little inspection door in the side of the nest-box got open which so upset and alarmed the hen that she lost all interest in further operations. The third two-year-old young cock, as recorded elsewhere, produced two green young when mated to a lutino hen. The young I am rather afraid are both hens so that, while they would be split for blue, they cannot, unfortunately, carry any factor for albinism.

A pair of Leadbeater's Cockatoos, three years old, were obtained too late in the season to give them much chance of settling down to nest, and the pair of imported Citron-crested Cockatoos are so terribly nervous that it is not surprising that they also did nothing.

The hen of the pair of Princess of Wales Parrakeets began by behaving in a tiresome way which is too often characteristic of her sex and species. She occasionally went into the nest-box, but instead of depositing her eggs there she laid several from the perch until I put some soft material under the latter to deprive her of the pleasure of hearing them fall with a plop on the cement floor of the aviary flight when she decided to place a few in the nest itself, and even sit on them. When her young were half-grown she made a hearty meal of their plumage, so that they left the nest with little more than tail and flight feathers, but in the end they recovered and showed no sign of the bad treatment they had received. The cock, unlike many cock Princess of Wales proved a most devoted husband and father, not only feeding the hen regularly, but also feeding the young when they left the nest long after their mother had ceased to take any interest in them.

The Barrabands did not seem a very promising pair as the hen, imported the previous summer, was extremely badly affected with eye disease, and was only cured with great difficulty by the skill and patience of Dr. Lake. When the nest-box was put in, for some time she took only a very casual interest in it. This, however, did not please the cock as I was made aware, not so much by the evidence of my eyes, as of my ears. With Barrabands, the cocks are the weaker sex so unlike Broadtails they cannot beat up their wives when they feel the latter are neglecting their domestic duties. What they cannot accomplish by force, however, they can sometimes bring about by continual nagging. The cock Barraband, when he is annoyed about anything, shows it, not only by ruffling his feathers and flapping his

wings, but also by making a peculiar peevish, whining noise. In this form of complaint the cock Barraband began to indulge from morning till night until it so got on his wife's nerves that she went into the nest-box and laid six eggs. Five young birds were hatched and reared, but one or two of them were somewhat rickety, though others were good specimens.

Manycolours reared two broods, four cocks and a hen in the first and a cock and two hens in the second. I kept one of the hens as a mate to a single cock Hooded to find out how near the hybrids would resemble Paradise, but unfortunately she has just died. The old hen, also, became ill with coccidiosis, but eventually made a good recovery. The first sign of illness was that she appeared to experience a slight difficulty in flying and when she was at her worst, she was not only unable to fly, but quite unable even to open her wings. The power of flight was regained quite suddenly after she had been improving for some time. On the whole, however, coccidiosis has not been quite so troublesome this year as it usually is, possibly because I have been giving all susceptible birds a course of "Embazin" at three-weekly periods during the dangerous period, i.e. July to October. It is said that no drug will prevent coccidiosis, but that a bird may be cured if it has already been infected but the microbes have not yet reached the stage at which they begin to affect the health of their victims.

Two pairs of Elegant Grass Parrakeets, one consisting of an imported cock and an English-bred hen and the other of two young birds I, myself, bred last summer, laid three lots of eggs each, but not a single one proved fertile.

Turquosines did equally badly. The first lot of eggs from my old pair were all clear, and the second lot had young dead in the shell. The third lot produced more young dead in the shell and one chick that died as soon as it was hatched. The fourth lot I gave to a pair of Elegants, but the hen gave up sitting just before the Turquoise eggs were due to hatch.

Bourkes did rather better. My old pair reared two young in their first brood and two in their second. The cock, just as he did last year, started to bully the hen when the young of the first brood were still quite small, wanting her to go to nest again, so I removed him and disposed of him at the end of the season, as this stupid behaviour is not normal with Bourkes. In fairness to him I ought perhaps to add that when I returned him to the aviary for the second round he was perfectly well behaved with his two fully-fledged children, although he had not seen them since they were quite tiny. The second pair reared three young in their first round and two in the second, a third dying in the nest. The young cock in the second round is a particularly beautiful specimen, large and richly coloured, so that I am keeping him as a mate for the hen with the unsatisfactory husband.

A second pair of Turquoisines only produced two lots of infertile eggs. I bred the cock myself last year, and had some difficulty in mating him. The hen, which I got for him last autumn, who was a few weeks older than he, started to bully him, so that I had to keep them separate during the winter. When they were in breeding condition in the spring, I tried them together again, but the cock had neither forgiven nor forgotten the treatment he had received and attacked the hen most savagely. I managed to get him another hen who at first he found attractive but rather alarming. Before long they became good friends, but as I have already said, have so far produced no offspring.

The hen Splendid Grass Parrakeet was alone all winter and came into breeding condition rather early in the spring. After calling unavailingly for a mate for some time she apparently gave up all hopes of matrimony and consoled herself by indulging, not wisely, but too well, in the pleasures of the table, becoming exceedingly fat. I greatly feared that there might be trouble if she started laying when I managed to get her a mate later in the year, and my fears proved, unfortunately, only too justified, for she died egg-bound with her sixth egg without ever giving us a chance of seeing that she was ill. Another pair which I acquired in the spring did better, rearing five young ones.

With some difficulty I succeeded in obtaining two hen Nyasa Lovebirds. I have a lutino cock imported from Australia some years ago. In case the cock proved strictly monogamous and ignored one of the ladies, causing her to feel frustrated and bad-tempered, I included in the aviary an odd cock Budgerigar together with a violet cock and rainbow hen of the same species. Both hen Lovebirds went to nest, and both ignored the Budgerigar but, although the cock was friendly with both ladies his friendship with one has been I think, purely platonic, and none of her eggs has hatched. The other produced three green young ones which, after the custom of most Lovebirds, she well and truly plucked in the nest, although they have now grown their feathers perfectly. It would seem that some lutino Nyasas, if not all, are not sex-linked as an American aviculturist has bred quite a lot from a lutino cock and a green hen and all the young, like mine, have been green indicating that the non-sex-linked cross is recessive. The pair of Budgerigars reared a large brood—a yellow-faced violet, a yellow-faced cobalt, two ordinary violets, a cobalt and a sky-blue, and the Lovebirds did not interfere with them; indeed the hen Budgerigar was master.

Fischer's and Masked Lovebirds, let alone, of course, Peachfaces, are most unsafe companions for Budgerigars, but the small Nyasa and Black-checked are often, I think, reliable.

EYE DISEASE IN SMALL BIRDS

By E. B. TANNER (Finchley, London, England)

Following upon the recent articles on the above subject by Dr. Lake and Mr. Hastings, I should like to utter a warning to make sure that the complaint is not due to a simpler cause, namely dirt and germs introduced through the eye and leading to death by septicæmia, as the post-mortems have revealed. The same symptoms apply in every respect. If taken in time, however, four or five applications of boracic lotion are sufficient to effect a cure, especially if the patient is kept in a cage alone, with scrupulously clean perches and with clean paper (not sand) on the floor. It is, perhaps, unnecessary to remind one that the bird's beak should be held downwards whilst douching the eye, thus preventing the lotion from being swallowed. Of course, once the eye becomes swollen and sealed, as described by Dr. Lake, this treatment is of no avail, and my experience in this case has been death due to the cause as stated above. Perhaps the remedies he mentions may avail in these cases. During my many years in charge of the Bird House at the London Zoo I have found that eye troubles could usually be traced to this source, being undoubtedly contracted from dirt and germs deposited on the perch by the bird's feet, etc., being then picked up when the bird follows its usual habit of rubbing its face on the perch. I am practically certain that the use of natural tree branches *inside* the aviary is one of the chief reasons why birds pick this up. The rough surface and crevices form ideal lurking places for dirt and germs, and it is almost impossible to clean them properly in spite of every care. In *outside* aviaries where they are exposed to rain, they are not so bad, but even there I would prefer planed perches for a high margin of safety, though I know that it is said that branches are more natural and, with their varying thicknesses, are better for the birds' feet. As to the former, it must be remembered that birds do not congregate on one or two branches continuously, but have an immense selection. I do not think the latter of very great importance, but planed perches can be of several diameters if preferred. Of course, they should not be thick enough to catch droppings when the birds are upon them. I may say that I cannot remember a case of this sort amongst the birds kept in the small cages at the Bird House, where they have planed round perches, and cases always occurred in aviaries where tree branches were used. Eye disease used to be common amongst birds sent to dealers by sea when the perches were in a filthy condition on arrival, either due to neglect, or, in some cases, wrongly constructed travelling cases which did not permit of the perches or even the water tins being cleaned. I would advise that a bird should receive treatment as stated directly an eye

shows signs of weakness. The weakness may, of course, be due to the bird colliding with some object—this often happens—but the bathing will be of the same service, and will be a safeguard while the eye is weak and apt to get infected. But perches that can be properly cleaned are the best of all—a preventative.

I should like to add that I was induced to submit this suggestion on remembering a number of small private aviaries and also public collections where tree branches have been left without cleaning or renewing for long periods, by their appearance. Infected birds could be seen at times, their owners or custodians being innocently unaware that prevention was in their own hands.

* * *

OBITUARIES

MISS E. F. CHAWNER

The death of Miss Chawner on Friday, 16th October, in her 88th year, has removed one of the oldest members of the Avicultural Society, which she joined in July, 1899, and one whom the Society honoured by making her a life member after she had been a subscriber for fifty years.

As an aviculturist she was first known for successes in keeping and breeding owls when she lived at Lyndhurst in the New Forest. For her as well as for everyone at Leckford it was great luck that she should have written a charming article in the Magazine about these owls, because after reading it Mr. Spedan Lewis got in touch with her through Miss Knobel, and asked her if she would come and take charge of a big collection of birds he was forming in the Thames valley.

There she had charge of a collection ranging from Macaws to Sun-birds and including about three hundred owls, a number of which bred.

Later Mr. Lewis disposed of that collection when he moved to Leckford, but after getting the estate in good order, he built one of the finest ranges of aviaries and waterfowl enclosures, and started to form another collection. Here he and Miss Chawner assembled a magnificent collection of pheasants, owls, touracous, cranes, and waterfowl, as well as a number of odds and ends.

Miss Chawner was Editor of the AVICULTURAL MAGAZINE from 1935 to 1938, when she was succeeded by the present Editor.

In 1938 Miss Chawner was also beginning to wish to retire from her other work and, once again through Miss Knobel, Mr. Lewis appointed a curator, this time me. I came to Leckford to succeed Miss Chawner in 1939.

I shall always be grateful that I had the luck to come to know Miss Chawner really well. She was a highly cultivated woman with a delightful sense of humour, and was also a shrewd judge of people. She was an entomologist of distinction and discovered and described the life cycle of two species of sawfly previously unknown in this country. When Miss Chawner decided to give up serious collecting, the Keeper of Entomology of the British Museum (Natural History) came to see her collection, and took a number of specimens to add to the national collection. Miss Chawner was also a great botanist, and would go miles to see a rare plant. Like a number of aviculturists, she was a really knowledgeable gardener, and it is primarily to her that I owe the great pleasure I get from growing rare plants, and indeed for a good number of the plants I grow.

I think Miss Chawner's most striking qualities were her serenity and her lively interest. She always remained what she was, a cultivated Victorian countrywoman. She was not only a very good all-round naturalist, she was also a unique friend to all who knew her well.

F. T. J.

THE DUKE OF BEDFORD

The tragic death of the twelfth Duke of Bedford, which occurred on 9th October, has been a severe blow to the Avicultural Society and its Magazine, to the Zoological Society, and to all who are interested in the keeping of wild animals, including birds, in captivity under the best conditions. The collection at Woburn was in the past the finest in the world, thanks to the skill of the late Duke's father, and much of it has been fully maintained and even improved by the Duke whose death we now mourn, for he inherited a love of animals from both of his parents. His father's interest was, perhaps, chiefly in the larger mammals, the deer, bison, and so forth, but he also maintained a fine collection of birds such as waterfowl, pheasants, and cranes, while flocks of Crested Pigeons might be seen in the trees or on the lawns. His mother was a very good ornithologist, bird-watcher, and bird protectionist, one of the very first lady members to be elected to the British Ornithologists' Union, and for many years Vice-President of the Avicultural Society.

The only child of these animal-lovers grew up to love the rare creatures around him, and persuaded his parents to let him keep some himself. He was chiefly fond of birds, and soon had a good collection of foreign finches, waxbills, and weavers which he accustomed to fly loose and make their nests in the gardens around Woburn Abbey.

Among the greatest of the Woburn treasures is the herd of Père David's Deer which the eleventh Duke started from a very few specimens collected from various Continental zoological gardens, the

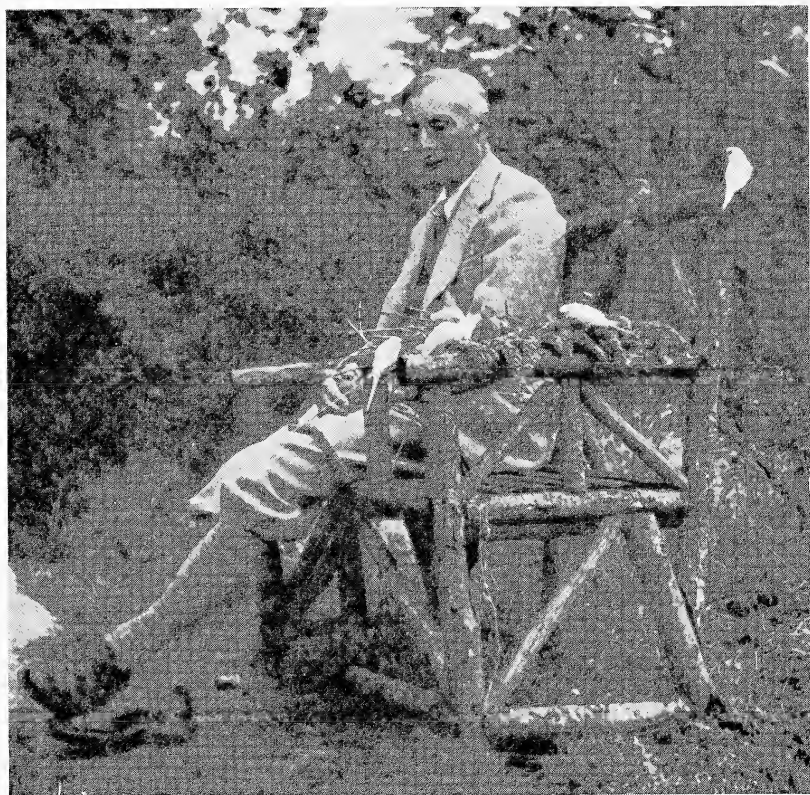
only remnants of the herd that formerly occupied the Imperial Park in Pekin. Under the care of his son the herd has increased to more than three hundred magnificent animals, the only ones in the world except the few the late Duke gave to Whipsnade, Bronx Park, and a few other places. A very similar story might be told of the almost extinct European Bison which has probably been saved from extinction by the Duke and his father.

The war destroyed much of the Woburn collection, but it was being built up again by the Duke. Only a few weeks before his death he told me he was going to try to replace the flock of Australian Crested Pigeons for which Woburn was formerly famous; but for many years past the Duke's favourites among the birds have been parrakeets, of which he had a collection with few equals in the world. Many very rare species were represented, as well as rare varieties such as the famous blue Ringnecks. Members of the Avicultural Society are familiar with his experiments in evolving a strain of Homing Budgerigars which has proved quite successful, both at Woburn and in Devonshire, and as recently as last September he invited me to spend a night at Woburn so as to be able to see the release of the Budgerigars in the early morning.

In a large outdoor aviary amongst wooded surroundings were some hundred or so birds, mostly from early broods this year, and at 7.30 a.m. a door at the top was opened and out flew a crowd of various colours which had apparently been waiting for this moment. They flew around in evident enjoyment, some settling upon the high trees, while others made straight for a bunch of millet sprays, but many circled around showing off to perfection their arrow-like flight which can never be seen properly inside an aviary. None of them seemed to want to go far away from the aviary which they regarded as their home, and to which they kept on returning through funnel-shaped openings in the sides. It was a wonderful sight, never to be forgotten.

Under the title of Marquess of Tavistock the Duke (who succeeded to the full title in 1940), has written many very excellent articles for the AVICULTURAL MAGAZINE, of which he was for a time Editor, while his *Parrots and Parrot-like Birds* has proved of great value to many aviculturists. He had never lost his early love of wild creatures and had kept up as far as possible, the wonderful collection established by his father. He was a thoroughly good man, and besides his great love of birds and beasts, was very kind to those of his fellow human beings whom he considered needed his help.

D. S-S.



[By courtesy of Country Life.]

THE DUKE OF BEDFORD WITH BUDGERIGARS AT LIBERTY IN HIS GARDEN.



Female Little Ringed Plover at nest ; note light eye-rim and dark bill.



Male Ringed Plover at nest ; note lack of eye-rim and pale base of bill.

SOME STUDIES ON THE LITTLE RINGED PLOVER

By K. E. L. SIMMONS (Tilehurst, Reading, England)

With line illustrations by ROBERT GILLMOR

INTRODUCTION

Before 1938, when the first known nesting took place at Tring in Hertfordshire, there were probably less than twenty authentic records of vagrant Little Ringed Plovers (*Charadrius dubius*) in Britain. Since then the bird has invaded our country in earnest, finding a habitat mainly unexploited by other species, and now in 1953 is well established as a regular summer resident (probably about 100 pairs at a very rough estimate) in south England—from Berkshire in the west (with an outpost in Gloucestershire), to Kent in the east, Sussex in the south, and Northants and Cambridgeshire in the north—with the main population centred in the London area. Yorkshire and Stafford also have some pairs, but in Wales and Scotland the bird is still only an irregular visitor. I do not propose to deal further with spread and distribution here, for this has been fully treated by E. R. Parrinder in the pages of *British Birds*, *Bird Notes*, and the *London Bird Report*, but rather place emphasis on behaviour, some aspects of which I aim to describe in fair detail, basing my remarks mainly on personal observations on several pairs in Berkshire since 1949. As a background for this description I have given a “potted” life-history account in the next section.

Now that many observers are Little Ringed Plover conscious, I doubt that the birds are overlooked to any extent, but prior to the later war years this was certainly not so. Confusion is possible with the larger Ringed Plover (*Charadrius hiaticula*) and I wonder how many Little Ringed were formerly written off as the common species. The two birds are readily distinguished though very alike in plumage. The best distinction is that while the Ringed has a clear white line on the upper wing surface the adult Little Ringed has none at all (but beware, for the juvenile Little Ringed has the very faintest suggestion of one). Additionally, I find that the orange-yellow eye-rim of the Little Ringed is a good field-mark which the Ringed lacks; even unfledged young have lemon-yellow eye-rims visible at very close quarters. There is also a marked difference in the adult's bill colour; the Ringed has a conspicuous yellowish bill base while for field purposes the Little Ringed's is more or less entirely dark. A less satisfactory character of the Little Ringed is the thin white line over the forecrown behind the black forehead band. The usual call-notes heard (which are in fact the alarm-notes) at once separate the two species: the Ringed's is a liquid “tōo-ee” (with emphasis on the last syllable), the Little Ringed's a more incisive “pee-ōō” (with stress on the first).

Their habitat preference, though there is occasionally slight overlap, is generally distinct, the Ringed being the sea-shore species, the other the inland fresh-water one. Of course, both species may occur on the other's habitat on migration.

LIFE-HISTORY SUMMARY

It is probably still too soon to attempt an accurate survey of the main arrival period of Little Ringed Plovers in this country from their winter quarters abroad. Our records are not sufficient and there seems to be a great deal of wandering by, presumably, first-year birds which may turn up at a site for the first time quite late in the season, as may other individuals which have bred unsuccessfully elsewhere in the country. However, April is probably the month in which most birds arrive, but in the last few years March records have increased (earliest local one, 25th March). Male and female may reach the breeding-ground at about the same time and, while it is not certain, or even likely, that they travel together, they do at times form pairs very soon after arrival. Often, however, the male comes first and is joined by a female later, nineteen days being my longest record of the interval between the two arrivals. It is possible that lone females settle for only a relatively short time, sufficient to rest and feed, at sites unoccupied by males.

While on the Continent Little Ringed Plovers are mainly river birds, where they nest on shingle-banks, etc., in England gravel-pits and the like are the main habitat. Some of these pits are much frequented by humans, but the birds are very tolerant. What the plovers need most are not peace and quiet (though very desirable) but some mud or marshy spot on which to feed, and a stretch of not too overgrown gravel on which to nest. In this country man would seem to be the species' main enemy—in the form of gravel-pit workers and their machinery, over-keen bird-watchers, heavy-footed trampers, egg-collectors, etc.

On the breeding-ground, soon after arrival until departure, the male Little Ringed Plovers, especially, show a variety of aggressive behaviour-patterns towards other individuals of their own species (aerial and ground display, call-notes, and, occasionally, fighting), particularly in the area of the nest-site. They do not, however, confine themselves to their territory but wander locally, learning to avoid neighbouring territories, and feed at "neutral" spots which no one pair owns, though aggressive behaviour may be shown there.

Sexual behaviour may appear soon after the arrival of the birds; in fact the very fact that male and female are paired is by itself a sign that sexual relations have already commenced, at least at low-intensity for pair-formation is no doubt effected by attempts at the coitional-ceremony (see below). Copulations and scrape-ceremonies may be

seen almost at once and early arrivals can have eggs by the third week of April, though May seems to be the month when most eggs are laid. The clutch of four takes just over three weeks to hatch and the young fly about three weeks after that. Both parents incubate and tend the young but sometimes the male plover is left "holding the baby" while the female at least prepares for a second brood, or, in the case of later nestings (June–July), actually leaves the breeding-ground. Genuine second broods (i.e. not repeats after failure) have not commonly been recorded (Bruce Campbell gives no instances in his recent book *Finding Nests* (1953)); in fact my own records of local birds in 1952, when two pairs laid second clutches, seem to be the only British ones.

Some adults leave the breeding-ground as early as July (when others are still engaged with repeat or second-brood clutches) but August is the main departure month, birds being less frequently noted in September. There are as yet no foreign ringing recoveries of British Little Ringed Plovers (only a comparatively few have been ringed) to give us even a pointer as to the wintering area of our birds, but this undoubtedly is the Mediterranean region and northern Africa.

SEXUAL- AND AGGRESSIVE-BEHAVIOUR

Much recent work on birds and fish by comparative-ethologists has demonstrated an important fact about the display of animals: when an individual displays the main drive behind its behaviour at the moment is in some way stopped from fully expressing itself. To expand, a male performing its courtship-display is urged on by its sex-drive. This drive has, as its basic objective, copulation with the female but display appears instead, perhaps when the sex-drive is low in intensity or when the female is not fully responsive, but most commonly when it comes into conflict with one or both of two other drives aroused at the same time—aggression and escape ("fear"). Both of these are a very usual response to close contact with fellow members of the species, and the male just cannot help feeling towards the female in the same way. Similarly, when a male performs threat-display, this is a sign that the aggressive-drive, which has attack as its basic aim, is inhibited—usually by an escape tendency. Thus, while the distinction between sexual- and aggressive-behaviour in the Little Ringed Plover is clear enough, it is not absolute. In this species too, there is a strong element of aggressive feeling in the courtship reactions, and both sexual- and aggressive-behaviour are mixed with an element of escape. This link is well demonstrated by the male's "upright" display and associated activities, which usually precede copulation, the whole sequence of which it will be convenient to describe next.

The male plover approaches the female in an initial posture very similar to the *horizontal threat-display* (see below), his gait a smooth, gliding run (*glide-run*). Often she shows pure escape-reaction by

running away and "bobbing", i.e. standing and jerking the head, neck, and forebody upwards a number of times, a typical response of alarmed waders. Sometimes she flies off with the male in chase, but usually she allows him eventually to catch up with her on the ground without flying away. The female being relatively still, the male's display can continue. As he nears her, his footsteps get progressively shorter, his speed diminishing, until he stands alongside the female with a deliberate *marking-time* movement on the spot, sometimes with such vigour that he strikes his breast with the alternately raised feet, the body however remaining steady all the while. During this approach he raises his body from the horizontal to the vertical plane with chest expanded, black band conspicuous, and head held high (*upright posture*). The female meanwhile has crouched down and the male soon mounts. Copulation proper does not always follow immediately, the male squatting down on bent tarsi, perhaps continuing to mark time on her back for a few seconds, sometimes as long as half a minute. Coition itself is effected very rapidly as the male flutters off backwards, his tail bending under the female's which may tilt to facilitate the union of the cloacas. Once, a nondescript high-pitched note was heard. Both birds then glide-run away from each other (escape) and commence displacement-feeding (see last section for a note on "displacement-activities"). Occasionally the male may show the same sequence of display (approach, upright-posture, marking-time) to rivals and undoubtedly this is the mechanism of pair-formation, as the German ornithologist Laven found to be the case in the Ringed Plover. If the approached bird crouches it is accepted as a female and display, mainly aggressive till then, switches over to a fully sexual response. If, however, it shows male behaviour, threatens back, etc., the responses continue on their aggressive course, a fight perhaps resulting. A further interesting fact supporting the view that the pre-coition display is partly an aggressive one, is that the whole copulation ritual may follow a territorial encounter in the Little Ringed. I have noted a very similar state of affairs in the Great Crested Grebe (*Podiceps cristatus*), a species I have been studying since 1948. The courtship-display, which is however not a pre-coital one, often follows aggressive tiffs between rival pairs; on analysis, the aggressive elements of the display can be seen clearly. Another link between sex and aggression is provided by the displacement-feeding that occurs after coition in Little Ringed Plovers. This is a common component of normal threat behaviour when escape is the main tendency. Sometimes a newly formed pair will give alarm-calls when the two birds approach each other closely.

The *scrape-ceremony*, a beautiful display pattern connected with the nest-site, is best dealt with under sexual-behaviour. Though it is not a pre-coital display, the male quite obviously has the female in

mind when performing, indeed the presence of a second bird is essential, and the normal copulation behaviour may follow or precede. The course of events is initiated by the male who begins to form, or enlarge, a hollow in the ground (*scraping*) by leaning forward and rotating on his breast, body and tail slanting up, feet scratching backwards. At the same time he opens his tail feathers, showing the conspicuous pattern of brown, black, and white, and as he rotates his



FIG. 1.—Male scraping and tail-flagging.

movements cause the tail to wave about conspicuously (*tail-flagging*), this probably functioning to attract the female's attention. She may then approach the scraping male and, if so, he gets out of the hollow, stands on the rim with his back to the female and now fans his beautiful tail right open over the scrape (*tail-spreading*). She slips under and into the shallow pit and he moves slowly away, tail still spread, at the same time picking up little pieces of stone and jerking them over his shoulder towards the nest (*stone-tossing*). As he gets further away his tail gradually relaxes. The female meanwhile may remain still in the scrape, rotate in it or move away. The male may then return and repeat his pattern or follow the female and scrape elsewhere, but sometimes the activities merely die down or copulation follows. Over the course of days, several scrapes may be formed, but eventually the female chooses one and lays her eggs in it. That part of the scrape-ceremony from the approach by the female onwards, has been termed the *symbolic-nest-relief* by Continental writers.

I have already spoken of the *horizontal threat-display*, a version of which



FIG. 2.—Symbolic nest-relief.

precedes the upright-posture and marking-time activities of pre-coition. Both sexes use this against rivals, holding the body horizontally, normally with the head sunk well into the shoulders, thus mainly hiding the black bib, and with the feathers of the underparts smoothly expanded, the flank ones pointing up over the closed wings. (In the pre-coition version, the under feathers are not so fully emphasized.) The aggressive bird glide-runs in this squat looking posture towards the opponent, a sure sign that real attack is not immediately imminent, for when it is the bird relaxes its display, the black chest-band coming into prominence, and runs purposefully forward, at high-intensity raising the back feathers a little and fanning the tail. Fighting may follow this, launched with the wings, and bill and claw are used if the birds get to grips, but this comparatively rarely occurs. Only occasionally will the attacked bird stay to argue the point. If it does the two birds perhaps even then only jump up breast to breast and separate again to threaten each other. At times, during more intense threat-display, the head may be less tightly sunk into the body and then the black bib shows up well. At lower intensities, the bird may stand or walk slowly about, with little or no orientation towards the rival, with the head held back, but not deeply sunk into the body, to meet the back feathers which are smoothly mounded up to a moderate extent (*hunched-posture*). The white under-feathers too are only slightly

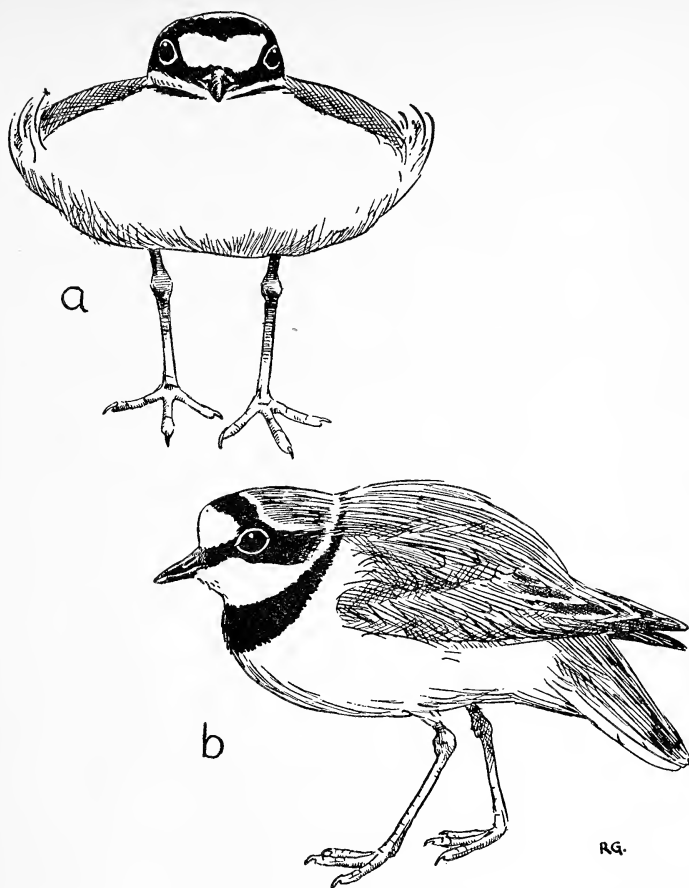


FIG. 3.—Threat : (a) horizontal threat-display ; (b) hunched posture.

expanded, the flank ones not pointing up over the wings, and the bib is not hidden. The tail may be spread and lowered, and at times the plover may stand up a little from the horizontal. In all display the orange eye-rim shows up conspicuously. A special threat-note (termed the *hostility-cry* by the Dutch ornithologist Sluiter) occurs during aggressive encounters (but not prior to copulation). This is a fast, mechanically ringing and rather musical “gree-gree-gree . . .” which becomes more slurred and higher pitched as it increases in speed. Less commonly, a series of low rolling rattles may be heard. At very low intensity the birds cease to display and displacement-feed or preen ; here we seem to have to do with a weak escape-drive.

Apart from ground threat, the male also has a *flight-threat-display* used

against flying intruders or from the air to birds on the ground. On seeing a trespasser in such circumstances (and at times the male plover is very unselective, reacting to his own mate and a variety of innocent birds of several species), the attacker moves towards it, in fast flight if the other is airborne, giving the hostility-cry. This may develop into display on close approach, the male stalling with rapidly quivering primaries raised in a medium V and describing a narrow arc. The tail is often fanned and, if the intruder is on the ground, perhaps elevated while the feet are slightly lowered. At the same time as the bird goes into display, the call changes to a very fast *buzzing-note*. This may sometimes be given in flight without the display. No real attack occurs in the air, but any of the ground activities may follow when the bird alights.

Butterfly-display-flight is another aggressive pattern. It commonly follows ground encounters with rivals, often when these have left the point of conflict, but sometimes occurring when no rival is involved at all, as for example when the male returns to the territory from outside. In this display the plover flies round the territory, curving backwards and forwards with the wings slowly beating, well extended, causing an illusion of a short tailed bird, and describing a comparatively small arc. Sometimes the bird tilts more from side to side with the wings flicking rather quicker, emphasizing the pale under-surface. A monotonous *rusty-call*, the "song" of the plover, accompanies this slow-motion flight, a deliberate "cree-ah(k)-cree-ah(k)-cree-ah(k) . . .". Some authors have called this display-flight a nuptial one but this interpretation is extremely doubtful. I have never seen it obviously given to the female and even if it is on occasions, we probably have to do with a case of the female releasing aggressive-behaviour in her mate.

On 22nd May, 1953, I saw an apparently unusual and interesting encounter between two males (A and C) at a feeding spot used by A for well over a month, but which now was presumably claimed by C as territory for a short while. When I began watching at 06.50, male A was scraping at moderate intensity and tail-flagging for a short while, more often merely standing and stone-tossing. His mate was incubating well-sat eggs about 300 yards away over the water. Male C was standing, facing away from A, a half-dozen or so yards from him, in the hunched-posture. At the same time he dipped his head and bill down towards and ground and back again several times, with the rest of the body quite still. Later observation showed that this was incipient stone-tossing. This male then glide-ran in the hunched-posture, finally turning towards A, tail fanned and lowered, and uttering a long series of hostility-cries. Both males then moved about in the hunched-posture, neither really facing the other, giving intermittent hostility-cries while A (apparently) also uttered several alarm-notes ("pee-oo").

Both also performed the head dipping movement which developed into stone-tossing and scraping, and displacement-fed occasionally on reaching softer mud. Finally, C flew up in low-level flight-threat-display at A and then circled about in butterfly-display-flight with hostility-cries from time to time, sometimes when flying just above A. Observations ended soon after at 07.30. I do not pretend to understand this encounter but it suggests a further link between sexual- and aggressive-behaviour.

BREEDING BEHAVIOUR

Copulation and scrape-making being achieved successfully, the breeding-cycle continues. No material is brought to the nest-scrape by the plovers which reach out from it and pick up items such as flakes of mud, dry bents, and the stones that tend to collect about because of the stone-tossing activity. These are added to the cup, which sometimes becomes quite substantial. It is interesting to note that the very large nest of the Mute Swan (*Cygnus olor*) accumulates in a similar way, by the raking-in of material by the sitting bird. Stone-tossing in the Little Ringed Plover is not confined to the scrape-ceremony, but may occur during incubation, when the clutch is incomplete and also when the parents change over at the nest.

Eggs are laid on alternate days and four make up the usual clutch, though later ones may be of three only. Incubation of sorts may start with the first egg but it probably becomes most sustained some time between the laying of the third and fourth. Both sexes incubate and the eggs hatch out in just over three weeks.

The first signs of hatching may show several days before the tiny chicks escape from the shell. The eggs first fracture at the point in the large end where the chick's bill, equipped with a whitish "egg-tooth" on the end of the upper mandible, taps at the shell from within. Such cracking may appear as many as five days before hatching though sometimes the fracture is still not obvious only a day or so before the emergence. At about the same time as fracturing, the youngster may be heard faintly calling "chip" or "cheep" if the egg is held up to the observer's ear. Doubtlessly the brooding parents can also hear this. As the tapping inside the egg continues, the shell is pushed outwards until a hole appears and the bill of the chick is visible. Finally the shell splits open into two main parts and the chick has hatched. The broken pieces are carried away from the nest and, so strong is the urge to do this, that I have seen a parent, calling its young after disturbance, chance upon a fragment of shell from the hatching one or two days previous and carry it away immediately to the water's edge. The chicks often hatch within a few hours of one another, apparently usually overnight. Sometimes one may be as much as twenty-four hours behind the others, but a more or less

synchronous hatching would seem to be desirable. The young soon leave the scrape, especially if disturbed, and a late egg may be left behind unbrooded. At one nest an egg had only a small hole in the shell some twelve hours after the others had hatched. The three chicks had left the nest so I acted as midwife by enlarging the hole with my thumb nail. Even so I was worried lest no adult returned to the nest, but in the evening one of the parents was seen to go to the scrape, call the chicks to it, and brood them and the egg together. The latter had hatched out by next morning and all four youngsters successfully reached the free-flying stage.

The chicks are damp on coming out of the egg and need brooding, indeed brooding is the main task of the parents during the first week or so of their youngsters' lives. The adults do not usually sit fully on top

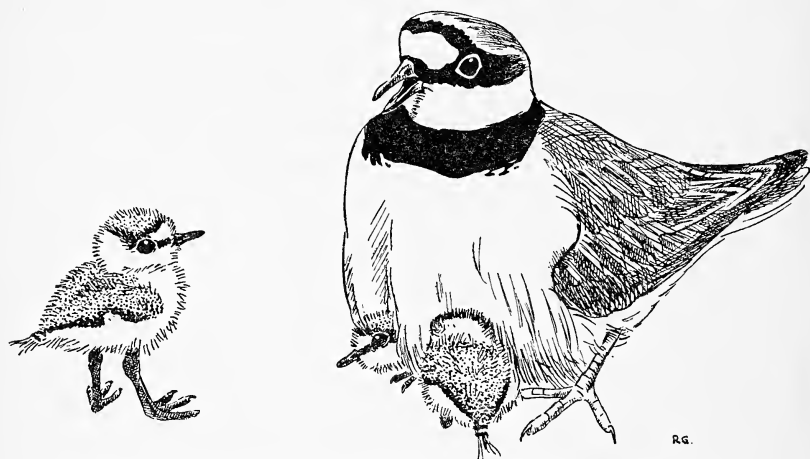


FIG. 4.—Parent calling-up and brooding chicks.

of the chicks, like they do on eggs, but rather half stand, with fluffed underparts, and allow them to creep in underneath. Generally one parent is on duty at a time while the other waits "on guard" near by or goes off to feed. The young are not fed, though one popular writer has stated that they are. They find their own nourishment in the form of minute invertebrates (mainly insects) on the gravel or at the water's edge. The stomach of one very small chick, not much more than twenty-four hours old, contained the remains of many tiny beetles. Apart from brooding, the parents' other important task is to warn the chicks of danger and to deal with the would-be predator. The only predator of which I have had experience is man in the form of the observer—myself. On being approached by a human the bird utter the alarm-notes ("pee-oo" and "cloo"). When very young the chicks probably

always immediately crouch flat down at this and remain perfectly still, but larger young are usually only put on guard on hearing the calls. They show alarm by "bobbing" and displacement-feeding, only crouching when they see the predator or when the parents fly up from them, calling. Once down the chicks remain there until the observer has gone and the parent has reappeared. Small chicks advertise their position to the adult with a rather high-pitched piping. Larger young are called up to the parent by a fast repeated "pip-pip-pip-pip . . ."



FIG. 5.—Chick crouching (drawn from life).

call. The best way of locating the chicks when unobserved approach is impossible is to allow the parent to locate them for you. First flush the adult, then retire to cover, or as far away as possible in the open, and stay still. Almost invariably the parent will soon resettle and, after initial alarm, go to or call up the chicks. Even if these are old and require no brooding, the return of the adult will stimulate them to move about again, but the older the chicks are, I find, the harder they are to track down. The younger the chick, the stronger the parental brooding-drive and the swifter the return to them. I once had the wonderful experience of seeing a female come and brood her single tiny chick only five feet from me as I lay perfectly still flat out on the gravel. The call of the young on being persistently handled is a trilling purr of a note. The chicks swim readily if needs be, even when not disturbed.

Apart from the behaviour outlined above, the adults may exhibit a very complex and elaborate set of reactions towards man, the potential predator. My studies have mainly dealt with this form of behaviour and it is worth outlining the whole gamut of reactions to man throughout the annual cycle in order to put those occurring during the chick-stage in their proper perspective. It is impossible, however, to give all

the intricate details and complex discussion of facts in the present paper.

In the winter and early days after arrival at the breeding-ground the main response to the close approach of man is escape. This takes the form of "pee-oo" alarm-notes, bobbing, displacement-feeding, and flight away. When the plovers have settled down in the breeding-territory, but before eggs have been laid, they still show alarm but seldom fly away unless really very closely approached. Instead they run ahead of the observer, tending to adopt a crouching position with legs bent, head in, and body more or less horizontal (*crouch-run*). This is often followed up by displacement-feeding. If the birds do fly they seldom go far. Some factor is inhibiting the full expression of the escape-drive, and we think that this is a tendency to attack, though the

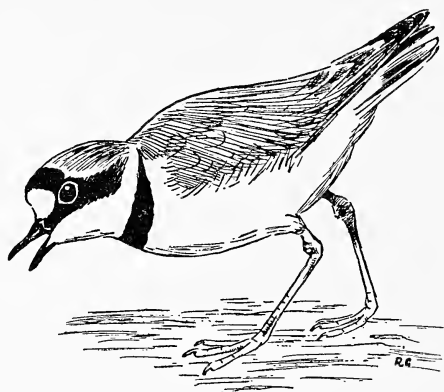


FIG. 6.—Bird giving alarm-note while displacement-feeding.

birds dare not do this to such an immense upright predator as man. Occasionally, however, the male will break into the territorial butterfly-display-flight and even utter the buzzing-note towards the intruder—a sure sign that he is feeling aggressive to him. Just before egg-laying another pattern appears. At the end of a crouch-run away the bird may stop and, instead of displacement-feeding and/or calling, it may lean forward and crouch down on the ground, sometimes in a hollow, and remain still there as if brooding eggs, perhaps for over a minute at a stretch if the observer does not approach. It may perform this *displacement-brooding* several times in succession. All the behaviour listed so far continues to be shown during incubation, but then the birds tend to do the brooding movement incompletely, crouching with the body slanting forward sharply, stern in the air, vent showing, and the legs only half bent (*squatting*). They tend now to run in a similar posture on occasions, in short dashes (*high-tailed run*) and the more incubated the

eggs become the more inclined are the birds to perform the most complex of the reactions to man—*distraction-display*. Until the hatching time, however, the plovers do not draw attention to themselves in the area of the protectively coloured eggs. They fly silently away with perhaps the first signs of peculiar flicking wing action (*impeded-flight*) and show the more elaborate behaviour at some distance. Apart from



FIG. 7.—High-tailed run (from a field-sketch by the artist).

the usual alarm-note, “pee-oo”, another call with a hard edge to it is common now, a fast repeated “cloo”. Near hatching time onwards, and especially during the first few days of the chicks’ lives, the parents are liable to perform intense distraction-display if sufficiently stimulated. Impeded-flight becomes very pronounced as the birds flit round the observer and calling increases a great deal. As the chicks get older the elements of reaction drop out one by one in the order in which they appear, until when they are free-flying the adults are showing the same reactions as in the pre-egg period.

Distraction-display is very intricate, varying much in intensity depending on the age of the chicks and the degree of stimulation. High intensity display is to be expected when the young are small, lower intensity prior to hatching and when the chicks are older. However, once when I was ringing two-week old young, one gave its purring alarm-note and immediately one of the parents flew at my head, swerved off, and broke into violent and totally unexpected display. In the following description the full intensity sequence is outlined; at any one moment, of course, the behaviour may be at any stage in this sequence and elements may be omitted. One so often reads that simply such-and-such a wader runs off fluffing its feathers and trailing a wing, that I may be forgiven for going into detail in order to show how much more is usually involved.

Crouch-running is the first ground reaction, probably after the plover has circled round in impeded-flight. This is succeeded by high-tailed running, the bird pausing and then dashing off again. Soon, at the end of a run, it may sidle to one side, sway its body round a little to get a better view of the observer, and then squat, the wings being now

free of the flank feathers. The first element of true distraction-display (*wing-hinging*) may now appear. With ducked head, the plover starts to move the closed wing outwards, at first with perhaps only a few slight tremblings. Soon the wings are trembled jerkily with a rotating action, the primary-tips moving out well from the sides. The bird often tilts over, now to one side, now to the other, hinging the opposite wing. The observer is soon conscious that much more white is visible

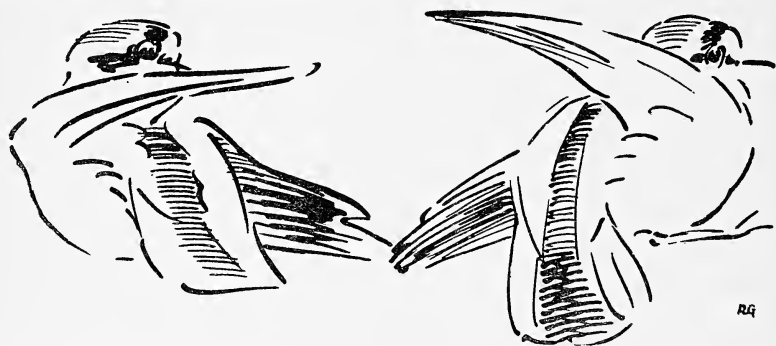


FIG. 8.—Wing-hinging distraction-display (from field-sketches by the artist).

on the upperparts than is normally the case, especially in the rump area. This is because the flank feathers are fluffed right up over the sides and on to the back so that only a narrow band of brown shows down the centre. The bird's conspicuousness is further stressed by the pale under-tail and belly feathers. On increasing intensity the wing movement speeds up into a rapid fluttering, still with the side-to-side tilting, and the tail may be fanned into its striking pattern and depressed to the ground. The position of the wing feathers is interesting all the while. The secondaries remain folded over the primaries as when normally closed at the side and the wing literally hinges outwards and forwards with the carpal fixed still at the side of the bird's breast. The pale undersurface of the wing is thus exhibited to the observer, who always views the displaying plover from behind. Wing-hinging develops into *wing-rotating*. The folded wing is now held out from the side, the carpal being no longer fixed, the bird raises its body more erect and rotates the wing rather like a schoolchild doing its elbow-circling exercise. The tail is usually fanned and lowered. From this the bird may switch to *high-wing raising*. The primaries of one wing suddenly flick out from under their secondaries, both retaining the same relative levels as when folded so that the wing is now curved. The wing is held straight up and is usually tilted forward slightly, showing the undersurface. The bird may rest thus, leaning on the side away from the raised wing, or occasionally flick up the other wing as well, lying with them both up and tilted forward. At still higher

intensity *open-wing flapping* occurs. With both wings partially or wholly open, the bird vigorously beats now one several times, now the other, against the ground, turning the body frequently as it does so. Sometimes the wings are merely flicked up and down one at a time,



FIG. 9.—Distraction-display : high-wing raising.

occasionally both together. Although the plover usually high-tail runs between bouts of static display, it may now and then run on while still displaying and occasionally fly low over the ground or water with tail still fanned and depressed and with very ungainly wing movements, probably a compromise between display and impeded-flight. Even more occasionally it may perform a *display-run* with the wings twitching up and down alternately at the sides. I once saw a beautiful version of this when a bird ran off twitching the wings under the fully expanded and lowered tail. Displaying birds are often silent. The two alarm-notes may be given during pauses or when the bird is merely squatting, but a peculiar *chattering-call* accompanies very high intensity display at times. While performing the bird tends to make partial use of cover, displaying in hollows, behind mounds, etc. The more worked up it becomes the nearer it displays to the observer. Really close display is not common, however, under usual conditions. The best way of

effecting a near approach is for the watcher to lie down. Probably when he destroys his outline and height he ceases to be a human as far as the plover is concerned, and the bird becomes less afraid. Often it stops displaying and then attempts to reach the chicks and brood them.

MISCELLANEOUS

In the broad details of its behaviour the Little Ringed Plover is very similar to its near relations, the Ringed and Kentish Plovers. The aggressive-behaviour of all three is much the same ; though the threat-displays and notes differ in form, they all have more or less the same butterfly-display-flight. The Little Ringed, however, alone has a well-developed flight-threat-display though there are signs of this activity in the Ringed Plover at least. Sexual-behaviour is more or less identical in Little Ringed and Ringed but very little seems to be known about the Kentish. General breeding-behaviour is closely similar in the three, except that the Kentish regularly lays only three eggs and these are often nearly covered over by the nest-scape material. The distraction-displays follow the same general trends, though there is much variation in detail, but the Ringed and Kentish have commonly used display-runs. So close is the behaviour of these ringed-type plovers that they seem regularly to try to keep one another off their breeding-territories. Avicultural evidence of interbreeding, which does not occur in the wild, would be very interesting. I wonder if any aviculturist would kindly advise me as to the possibility of keeping any of the three plovers in captivity from an early age onwards. An opportunity of such close study would be invaluable.

Male and female Little Ringed are practically impossible to distinguish in the field except at close quarters with the aid of binoculars. Then it may be seen that some females are definitely browner than their mates about the head markings, especially the patch through the eye, and have the orange eye-rim less bright. I find the sexes of the Ringed Plover easier to tell apart, again mainly on the intensity of the black markings, while in the Kentish there is a well-marked sexual dimorphism.

The Little Ringed Plover is a ground feeder, obtaining most of its food near or at the water's edge, on gravel, short grass, mud, etc. Its gait while hunting is a twinkling run, the bird stopping and dipping its body forward to seize prey. It shares with the Lapwing (*Vanellus vanellus*) and the gulls (*Larus*), among others, one curious habit apparently connected with food-seeking—that of making pattering movements of the feet on mud. In the two plovers this is a trembling action of one foot only while the gulls mark time with both feet. The habit probably functions to bring prey to the surface of the damp mud.

Mention has often been made elsewhere in this paper of displacement-activities, a concept which owes much for clear definition to Tinbergen and his school. In general terms, a displacement-activity may be described as a movement occurring when the internal drive in action at the moment is not the one which normally produces that movement. Thus, in the Little Ringed Plover it was seen that displacement-feeding occurs during encounters between rivals, after coition and in response to predators. Here we most probably have to do with a blocked escape-drive in some way and it is worth noting that on occasions the bird utters the alarm-note while doing the feeding movements. These movements are usually performed incompletely, the plover not really seizing and eating prey, but sometimes the full pattern is enacted, especially in response to predators at a stage in the breeding-cycle when distraction-display does not normally follow on increased stimulation.

Finally, a word to would-be Little Ringed Plover watchers. A great deal of work remains to be done on the behaviour and general biology (and I hope the present paper doesn't show too much how true that statement is!). For instance, we still need to know much more about pair-formation and the only descriptive side of aggressive- and sexual-behaviour has been touched upon in any detail, full analytic study being needed. The breeding-biology requires to be worked out in detail and measured. Among other questions are the following. Do the parents ever call the young to food sources, as do many gallinaceous birds which the plovers approach in so many of their behaviour patterns? What are the natural predators? Does the male Little Ringed bear the brunt of the incubation duty when the eggs are fresh, as the male Kentish Plover (*Charadrius alexandrinus*) seems certainly to do? The queries are numerous and the intending watcher is guaranteed a busy and interesting time whatever his bent.

ACKNOWLEDGMENTS

Sincere thanks are extended to the following : Robert Gillmor for his drawings, H. A. Thompson for his photographs, and C. E. Douglas for reading over the typescript of this paper.

SOME REFERENCES TO PLOVER BEHAVIOUR

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BREEDING OF RIU KIU ISLAND ROBINS

Icoturus komadori komadori (Temminck)

By A. H. ISENBERG (Woodside, California, U.S.A.)

“Loochoo” Robins are among the most charming birds of the world, and are native to the Riu Kiu Island chain south of Japan. The species varying in coloration with their Island home. The species here mentioned is from Amami Oshima in the north of the group.

In my forty-odd years of collecting soft-billed birds, I have seldom long been without a male “Loochoo” Robin. The females are extremely difficult to obtain, the reason being that a male call bird is used in trapping, and females generally stay away. The males are very aggressive fighters. Of the only two females I have had, one was received in 1949, the other in early 1952.

The 1949 bird had two eggs, and sat for ten days, when a bowel upset killed her. This story relates this year's success. When the 1952 bird arrived, I had two fine males, one I had had for more than twelve years, the other about two years, and to this one my hen was mated this year. Since the female was not in fit condition upon arrival, I was compelled to keep her separate until April, 1953.

The female was in a large cage inside the 50 feet by 25 feet aviary where the male could see her for these many months. Early in March the male built a nest in an old natural log nest-box, but the female was not released until April. When released the male did not at once display, but he did sing to her and kept going in and out of his log, which is 18 inches from the ground, trying to interest her, but she would have none of it. There was another log nest hung about 8 feet up on a dead tree trunk, and to this one the female took a great interest, and in three days she had put quite a few dry bamboo and old moist leaves into it. The male was seen to look in once in a while, but he did not assist in building. The hen filled the log nest to within about 3 inches from the hole, and then formed the nest with dry grasses and horsehair. Now the male was seen to display and sing to his mate, and a pretty sight it is. He struts, not unlike a Turkey, with lowered wings, tail fanned out and held up over his back the while a torrent of lovely song pouring forth. The actual mating is a violent affair, so much so that I thought he would kill her with his fierce onslaughts. The next day one egg was seen in the nest, and another the next, then a third and sitting in earnest began. This log nest had a very large hole which worried me, as any bird or mouse could get in, but all went well for fourteen days, the male was a perfect guardian, and chased every other bird that came within ten feet of the nest, small or large; Grey Thrush, Chestnut-bellied Rock Thrushes, Indian Brown Robins, Hermit Thrushes, Daurien Redstart, Solitaires, etc.; the Loochoo was king.

The hen prepared small mealworms, flew to the nest with them in her beak, and then ate them, which indicated something was wrong. Upon looking in the nest I found it to be empty ! I blamed a number of things, other birds, mice (of which there were a few), but no doubt it was the male wanting to mate again, etc. I then caught the female and caged her for a week, thinking the rest would do her some good ; the male all the while went in and out of " his " nest. After again releasing the female, the male tried and tried again to interest her in his nest, but she chose a small square parrakeet nest-box which I had nailed some nine feet up on the concrete block wall of the shelter to the aviary. This nest-box has a platform under the $1\frac{1}{2}$ in. diameter hole which she usually used before entering. She almost invariably approached the nest from the same direction. This box had been used as a sleeping place for an Indian Nuthatch, which was promptly killed by the male Loochoo before I could stop it. The female Loochoo again built the nest, and laid her three pale buff-coloured eggs after the usual pretty courtship. The male did not assist in incubation, but made quite a nuisance of himself fighting with all other aviary inmates. When the female had sat for a week, I caged the male so that he could see the nest and sing to her.

On the fourteenth day one young hatched, and on the fifteenth day there were three young in the nest. We were very lucky in having a good supply of very small mealworms, and many in the soft grub stage, also I had an old beehive with thousands of wax moth larva, to which the female was partial. All went well until the fifth day (my wife would feed her at regular intervals six or seven times a day, or approximately every hour when I was not home). We gave the hen two or three worms or grubs and larva at a time, which " dose " she two to four times took to the nest. Each time, for approximately the first week, she waited to swallow the faeces of the young, after which she carried the fecal sacas the length of the aviary, dropping them into the water. On her third trip to the nest I could hear her jumping up and down in the nest, and then she let out a Loochoo Robin shriek, and emerged with a dead young in her beak. She flew the fifty feet length of the aviary with the young one and I after her, she dropping it in the water. My spirits sank after this, as I pictured the other two young with the same fate, but luck was with me. On the seventh day all was going along beautifully, when I discovered a place not far from our house that had *thousands* of earwigs in old benches and tables, which were easily collected by holding a large bowl under the earwigs' hiding spots and pounding the spots with a hammer, upon which the insects literally poured out. I rushed home with my find, and needless to say " Mamma " Loochoo recognized the earwigs at once. I gave her only two at a time at first, after I had snipped off their pincers with a fingernail clipper. The next day I increased the number, but

always alternating with small mealworms, grubs, and wax moth larvae ; once in a while I had a “flying daddylonglegs” and a moth or two for her.

On the twelfth day my wife and I began discussing whether we should take the young or not. I held off until the fifteenth day, which was a bit late, as the young were ready to fly, and fly they tried when I did take them. It was almost a full day before they would take food from me, and one of them I did have to force a bit, but the next day all was well, and they begged for food readily. At this stage the tails hardly showed, and it was at least two weeks before they had tails long enough to wag up and down in true Loochoo style. The young were rusty brown and heavily speckled with lighter brown or fawn. I was surprised to hear them tuning up quietly when two weeks out of the nest. Now at approximately ten weeks, white and black feathers are showing, and some of the reddish ones too. The face and underparts up to now were greyish. As I write (8th August) the white underparts are quite noticeable, and the black feathers too, also the rich reddish-brown of the male is beginning to develop, but not the black face as yet. I hoped that both would be females, but no such luck. I feel certain the dead chick would have been a female. I am most contented with this success, even though on 1st August the female and mother of these two succumbed to a bowel upset. I tried Aureomycin and Enos Fruit Salts, but to no avail. Tragedies like this are difficult to understand, especially when the aviary is ideal for Robin-type birds, having much leafmould, lawn, bushes, rocks, moss, running water, bamboo forest, logs, etc., etc., and the male was caged. The female did not appear to be aged either. Oh, the patience of an aviculturist !

I will not, however, wait another thirty-five years for another female, but will go myself if friends in Japan can't get me one. If I were down to my last bird I would want it to be a Loochoo Robin.

By 1st September the two young males were in full colour and in fine condition and singing quietly all day long.

* * *

IMPORTATION OF PARROTS THE 1953 BREEDING SEASON

By T. R. HOLMES WATKINS (Griffithstown, Mon., England)

“ . . . the Ministry will be prepared to issue a licence for the importation of five parrakeets from Holland on receipt of an undertaking that your poultry have been removed from the premises and that none will be kept in future. The undertaking must also state that none of your collection of birds will be sold, either the progeny of the imported birds or any surplus stock from the collection, and that no birds will be given away or disposed of in any way other than by destruction.”

The quote is from the reply of the Ministry of Agriculture and Fisheries to an application made last May for a licence to import five Brown's Parrakeets from Holland, where they had been for some two months and had been described to me as “perfect nice and healthy ; 5 pieces being 2 cocks and three hens” !

After some “negotiation” (if such is the right word to use in regard to a Ministry Department) the restrictions were, in the particular circumstances of this case, modified to allow the import of the birds on my undertaking to remove all poultry from my premises and not to keep any in future, to isolate any birds imported from the rest of the collection for two months, not to sell, give away, or otherwise dispose of them, and not to sell, give away, or dispose of any of their progeny during the following two years. Negotiations had, however, lasted so long that my Dutchman became impatient and disposed of some of the five so eventually I only got a pair. In the meantime, however, a fine cock Brown's had been obtained from Sir Crawford McCullagh as a mate for another hen imported last year.

When, a couple of months later, I applied for, and obtained, a licence for a cock Crimson-wing, also from Holland, though the restriction as to poultry was rigidly adhered to the other provisions were slightly modified so as to provide that “the birds will not be sold, given away, or disposed of in any way other than by destruction or re-export”. Allowing the restrictions to be necessary, and it rather looks as though they have now come to stay, they must surely result in the loss of all the rarer species of parrakeets through natural wastage and in-breeding. But why pick on the parrots ; what of the finches, weavers, and others still arriving ?

* * *

There must be an exception to every rule and if preliminary reports of a bad breeding season with parrakeets (“News and Views” for

May-June, 1953) materialized then for myself it was never better. It was also unique in that every adult mated hen nested and with one exception reared their young and there were some remarkable egg outputs. The collection now comprises exclusively Kings, Crimson-wings, Princess of Wales', Pennant's, Brown's, Pileated, and Splendids.

Among individual results and deserving of mention were firstly Pennant's. As most Princess are inveterate breakers so are most cock Pennant's inveterate eaters of eggs which is a very good reason why I think, so few are reared each year. I have at last devised a nest which excludes all but the most venturesome cock with the result that the two girls and I between us reared eight young.

Secondly Kings. The loss of the breeding hen last autumn after but one successful season was a big disappointment. A second hen that for the past four or five years had, with cocks that had failed to fertilize her eggs, laid and incubated clutches of six or seven eggs was mated to the widower. Instinct must this year have warned her what was about to happen for she laid but three eggs all of which hatched and were very well reared. Of all the parrakeets I keep, or have kept, Kings are the favourite and what a joy it is to feed a breeding pair with young. So soon as these chicks attained any size a pound of seed, half an apple, and vast quantities of groundsel were eaten each day. The two birds bred last year have turned out to be both cocks.

And, finally, a word about the Splendids. The season has conclusively proved that they are no more liable to sudden death than any other parrakeet and are reasonably easy to breed. I have yet to lose a bird from a broken skull or neck ; some broods are steady from the first, others wild, though not excessively so, and these latter almost invariably knock the feathers from the crown of the head and fracture the skin immediately they come out of the nest, but for that matter so do a good many other young parrakeets that are bred here. *The type of aviary you use and its seclusion or otherwise undoubtedly has a lot to do with these "mysterious" deaths one hears so much about.*

With the original hen, this season four of her 1951 hens were used for the first time. The five produced in the first "round" forty-six eggs. There were inevitable breakages amongst the eggs and loss of newly hatched youngsters by the inexperienced hens (it was one of these hens that was the breeding failure, she losing one by one her five young) but the joint effort of the others resulted in twenty-two very good young being reared. Second nests were almost a complete failure, for which the weather was entirely to blame, and only one further young bird was reared from four clutches. Two hens apparently thought they might miss the boat if they sat, so decided to play safe by abandoning their eleven eggs and falling into moult instead ; they were probably right, as one of their sisters did lose her small brood when the weather turned quite cold late in September.

ELEGANTS IN 1953

By I. BATY (Ponteland, Newcastle-on-Tyne, Northumberland,
England)

Something over a year ago I sent in an account of my Elegants which, judging by correspondence I have received, seems to have been read by quite a number of members, so I am continuing the story in the hope that it will be of interest.

To recapitulate, I started with one pair in the autumn of 1946 received from Dr. Alan Lendon. Breeding results were :—

1947.—Nil.

1948.—Three.

1949.—Three plus three from the young hen of 1948 paired to one or other of her brothers. Total six.

1950.—Three pairs of breeders—three each from the two older pairs. Total six.

1951.—Still three pairs—Pair No. 1, three young ; pair No. 2, six young ; pair No. 3, nine young. Total eighteen.

1952.—As for 1951, except that pair No. 2 had seven young making the total nineteen.

And so to 1953 when the story is not so “elegant”, though it is none the less interesting. We had a wonderful spring in the north, which encouraged the birds to breed earlier than usual. Pair No. 1—the original Australians—laid their first egg on 1st April, as did pair No. 3, my most prolific pair. Pair No. 2’s first egg appeared on 7th April—and the dates are significant because of what happened later.

Pair No. 3’s four eggs were all the eggs I was able to see while the hens were brooding, because the other two hens always rushed back to their logs whenever I entered their flights in the hope of getting a peep at the eggs.

I did not record the date when I found that pair No. 3 had hatched their four young, but they were not more than a day or two old. Within another day or two I managed to look into the No. 2 nest and found only one young one alive, another dead, and a clear egg. Prepared to take a risk, I took out the young one, put a 1953 Budgie ring on it, and put it into the No. 3 nest along with their four. I cleaned out the No. 2 nest in the hope that they would go to nest again—which they actually did.

Then I began to reckon up dates and decided that it was long past time for pair No. 1. to have hatched. That evening I managed to get a look into the No. 1 log and found five eggs. This was new from the old Australians, which in the previous five years had never varied from having three eggs. But the lapse of time made me certain that

they were not going to hatch. I took out an egg, broke it, and, as I expected, there was a fully developed chick "dead in shell". I reached down, took out the remaining four eggs, and threw them in the dustbin. Imagine my consternation when I saw that three of the broken eggs contained *live* chicks, but the damage was done. Just too bad.

But worse was to follow. The next day I found hen No. 3 lying dead in the flight. I blamed cats, which are my real *bête noir*. On looking into the log I saw that all five young were alive, but would they survive long? They were little better than tiny pieces of meat covered with down. To cut a long story short the cock has reared all five, and they are as fine as any I have seen.

Pair No. 2 were slow in getting on with their second nest, but when I went abroad at the end of July they had three fully-feathered young almost ready to leave the nest. On my return towards the end of August there were two fine young ones flying about, the third having died after leaving the nest. Perhaps cats again. On looking into the log I found the remains of a fourth young one which had died at an early age.

I was not sure that the old pair No. 1 would attempt a second nest, but they did, returning to their normal practice of three eggs. This was new for them, because they had always been single brooded. Again something went wrong. I found two of the eggs broken and the third very dirty and "neglected" looking, so again I cleaned out the nest. This must surely be the end—but it wasn't. Just before I went away the old hen laid again!—a third attempt.

On my return I found this old hen a dreadful mess. She was plucking herself. But she had three well-developed young! Now comes a curious part of the story. This hen had always plucked her young—sometimes rather badly—so that they looked wretched when they left the nest though they all fully recovered from the disfigurement. This time when she has plucked herself she has scarcely touched the three young which are now flying like hawks, and are actually the wildest I have ever bred. That is a puzzle I have not solved—they are in the same aviary, have the same nesting log, and the feeding is the same as it has been since I got them seven years ago. But I prefer the hen to pluck herself rather than the young—if there has to be plucking.

So in spite of tragedies 1953 has provided ten young Elegants, which means that sixty-two have been bred here since 1948, which is not a bad record. And what are they like? I may be forgiven if I give you the opinion of a real expert.

A week or two ago I had a surprise visit from Dr. Alan Lendon—and I wish I had the space to enlarge upon the pleasure that visit afforded me. I was able to show him the original pair he sent me in 1946 with their three young, and all the others except one which had been sold, and he was kind enough to say that these birds are as fine

as any he has seen, even in the wild. I regard that as praise indeed, coming from one whose knowledge of Australian parrakeets must be second to none.

Dr. Lendon was not sure whether the birds he sent me were wild caught or bred by him. If the former—and he has promised to let me know when he returns to Australia and his records—it adds to the interest because it may add a year or two to the age of the old pair which have been so persistent this year. They are certainly seven years old, and may be considerably more.

* * *

COUNCIL MEETING

A Council Meeting was held on 11th November, 1953, in the Council Room, Zoological Society of London.

OFFICERS FOR 1954

There were the following retirements and appointments :—

Council : Dr. W. C. Osman Hill, Mr. E. N. T. Vane, and Mr. O. E. Dunmore retired by seniority ; a fourth vacancy was caused by the death of the Duke of Bedford.

Mr. B. H. Dulanty, Mr. D. H. S. Risdon, Mr. Peter Scott, and Mr. T. R. Holmes Watkins were elected to fill the vacancies.

Editor : Miss P. Barclay-Smith retired according to rule, and being eligible was re-elected—for a fourth term of office.

Hon. Secretary-Treasurer : Mr. A. A. Prestwich retired according to rule, and being eligible was re-elected.

* * *

Elected Hon. Fellow : Mr. Allen Silver.

Elected Hon. Life Members : Mrs. H. E. Dennis, Mr. R. J. Pickford, Mr. J. A. Swan, and Mr. W. H. Workman.

* * *

SOCIETY'S MEDAL

The Society's Medal was awarded to :—

Mr. H. J. Indge, for breeding the Red-sided Eclectus Parrot (*Lorius roratus pectoralis*).

Mr. E. N. T. Vane, for breeding the Moustache Parrakeet (*Psittacula alexandri fasciata*).

ARTHUR A. PRESTWICH,
Hon. Secretary.

LONDON ZOO NOTES

By JOHN YEALLAND

A Mantell's Kiwi (*Apteryx australis mantelli*), presented by the Government of New Zealand, arrived by air at the end of September. It travelled via Honolulu, San Francisco, and New York, receiving at each stop kind hospitality and refreshment in the form of earthworms.

Mantell's is the only Kiwi inhabiting North Island; three others live in South Island and a fifth on Stewart Island. Since 1851 some twelve Kiwis of four different forms have been kept in the Gardens, one of them living for just over nineteen years and one or two laying eggs.

Owing to its dislike of daylight, this present bird is being exhibited for twenty minutes only each day at 2.45 p.m.; it is, of course, very active at night.

Two Curlew Sandpipers (*Erolia testacea*), new to the collection; a Little Stint (*E. minuta*); a Turnstone (*Arenaria interpres*); a Little Ringed Plover (*Charadrius dubius curonicus*) and three Ruffs (*Philomachus pugnax*) have been presented by the Zoological Gardens of Copenhagen; Mr. J. Frodsham has presented one of the interesting Himalayan Black Bulbuls (*Microscelis psaroides*), and other gifts include two Indigo Buntings (*Passerina cyanea*); a Nonpareil Bunting (*P. ciris*); a Cuban Finch (*Tiaris canora*); an Olive Finch (*T. olivacea*); a King Parrakeet (*Alisterus scapularis*), and three young Barn Owls (*Tyto alba*). A Prairie Falcon (*Falco mexicanus*), new to the collection; two American Kestrels (*F. sparverius*); and a Cayman Island Parrot (*Amazona leucocephala caymanensis*) were deposited, and three Garnet-throated (*Eulampis jugularis*) and three Gilt-crested Humming-birds (*Orthorhynchus cristatus exilis*) were received in exchange.

Two Painted Quail have been bred at the Bird House; a Sonnerat's Jungle Fowl and three Masked Lovebirds have also been bred.

A regrettable loss is the Spix's Macaw after twenty-three years in the Gardens.

* * *

BRITISH AVICULTURISTS' CLUB

The fortieth meeting of the Club was held at the Rembrandt Hotel, Thurloe Place, South Kensington, S.W. 7, on Wednesday, 11th November, 1953, following a dinner at 7 p.m.

Chairman: D. Seth-Smith.

Members of the Club: Mrs. J. R. Alderson, Miss P. Barclay-Smith, B. Benedict, Miss K. Bonner, Mrs. V. M. Bourne, W. Brain, Captain A. Clarence, G. T. Clark, Mrs. G. T. Clark, T. R. W. Crewes, W. D. Cummings, P. L. Dabner, Mrs. I. Darnton, B. H. Dulanty, O. E.

Dunmore, A. Ezra, Miss S. A. Fothergill, J. C. Garratt, T. Goodwin, F. Grant, H. J. Harman, Dr. E. Hindle, G. T. Iles, H. J. Indge, F. E. B. Johnson, Dr. R. S. Kirk, Miss E. M. Knobel, Miss M. H. Knobel-Harman, Dr. F. B. Lake, P. H. Maxwell, G. S. Mottershead, S. Murray, K. A. Norris, S. Porter, A. A. Prestwich, D. M. Reid-Henry, R. C. J. Sawyer, P. Sutton, E. H. Tong, E. N. T. Vane, C. H. Wastell, Mrs. J. Wheatley, H. Wilmot.

Guests : Mrs. M. E. Albany, Miss A. M. Alderson, M. R. Alderson, Dr. K. W. Aylwin-Gibson, J. Bailey, P. S. Bates, Miss A. I. Batho, W. Bird, Mrs. W. Bird, B. E. Bransden, S. A. Croucher, Miss D. Dabner, W. J. C. Frost, Miss H. Gentry, Miss S. Goodwin, Mrs. F. Grant, N. Hoskins, Mrs. N. Hoskins, Miss S. Indge, H. Ingram, Mrs. H. Ingram, M. A. Lake, Dr. A. Lendon, H. M. Luther, Mrs. N. Masters, Mrs. R. Maurice, Mrs. S. Murray, Mrs. D. Seth-Smith, Mrs. P. Sutton, Mrs. E. H. Tong, Mrs. C. H. Wastell, Professor J. Wheatley, Miss M. White, Mrs. H. Wilmot, A. J. Woods.

Members of the Club, 44 ; guests, 35 ; total, 79.

Members and guests stood in silence for a few moments as a tribute to the memory of Miss Ethel Chawner and of the Duke of Bedford.

Before introducing the speaker for the evening the Chairman presented the Society's Medal to H. J. Indge, for breeding the Red-sided Eclectus ; and to E. N. T. Vane for breeding the Moustache Parrakeet.

In his inimitable manner E. N. T. Vane gave a brief outline of the trials and tribulations likely to be experienced by the would-be bird photographer.

He then showed a selection from his collection of Kodachrome transparencies to illustrate " Parrots in England To-day ". It is probable that at present the Order Psittaciformes is represented in English collections by about one hundred and forty species. Now that the parrot ban has been reimposed it is highly improbable that some of these will ever again be seen alive in England. It is Vane's intention to build up as complete a photographic reference library as possible. He would be glad to have information concerning the whereabouts of rare species.

About seventy species and varieties were shown. Some of the more interesting were the lutino Blue-fronted Amazon, Hooded, blue Indian Ring-neck, and yellow Blossom-headed Parrakeet at Woburn ; Raymond Sawyer's Lear's Macaw ; Pat Maxwell's Pesquet's Parrot ; the White-bellied Caiques at " Darenth-Hulme " ; the Kea at the London Zoo ; and Edward Vane's Moustache Parrakeet family group.

The exhibitor is to be warmly congratulated on the very high standard attained, and the audience signified by its applause that it

fully appreciated his efforts. It is to be hoped that it will be possible for a further selection to be shown at a later date.

Many members do not appear to appreciate the importance of the meeting notice post cards. At most of the dinners there are numerous members who have not expressed their intention either to be present or to bring guests. To enable the Secretary to complete the organization of the dinners intending diners **MUST** return their cards on or before the stated date.

The next meeting of the Club is on **13th January, 1954.**

ARTHUR A. PRESTWICH,
Hon. Secretary.

* * *

NEWS AND VIEWS

H. J. Indge has repeated his success of last year in breeding the Red-sided Eclectus. This year two young ones were hatched ; one died after two or three weeks, but the other, a female, was successfully reared, partly by hand.

* * *

Percy Glover writes that he has visited the New Zealand Government trout and pheasant hatcheries, near Ngongotaha. Amongst the birds there are two Wekas, believed to be a pair, which the curator hopes will breed.

* * *

Darenth-Hulme, 1953. Later news : a Lineolated Parrakeet (*Bolborhynchus lineola lineola*) has been successfully reared ; the nest also contained three eggs with fully developed chicks. This is believed to be the first since Miss M. E. Baker's near success in 1913. The Triangular-spotted Pigeons eventually reared two young ones.

* * *

Dr. D. S. Newill has been elected President of the American Pheasant Society in succession to Dr. G. A. Allen. Dr. Newill has many avicultural and ornithological achievements to his credit, possibly the best known being his successes in bringing the Ocellated Wild Turkey and the Emperor Goose into the United States.

* * *

Arthur Lamb reports at the end of September that his young hybrid Blue-fronted Amazon × Yellow-cheeked Parrot "is now eating seed, and will take a nut from me and eat it, so that we can say that it is now independent of its parents. It is a very big bird and is flying well. At first I thought it very clumsy, but within a week it was able to land on any perch without falling off".

* * *

F. H. Rudkin, Sr., writes : " Have you noticed the colour change of the beaks of young Derbyan Parrakeets ? When they first leave the nest they all have red beaks. Then after about three weeks they all turn black. But at or about their first moult the young males' beaks turn red like their male parent, and the females' beaks remain black like their mother's.

I had a pair of Valley Quail in an aviary. The hen laid about twelve eggs and then died. The cock took over and sat for about twenty days. He brought off eight chicks and has cared for and brooded them well."

* * *

The trapping pool in St. James's Park is now being operated and ringing is progressing in earnest. It is the aim to ring all the ornamental wildfowl in the Park, including those which are pinioned. The birds caught so far have been pinioned, but these are being ringed for record purposes. The full-winged offspring of the pinioned stock continues to elude capture but there is now a much better chance of catching them. The Society's special blue rings are used by the Bird Sanctuaries Committee, Ministry of Works. Ring size 4 is usually recommended for Pintail, but the Birdkeeper, our member W. H. Punter, has found size 3 a better fit, moving freely up and down the tarsus.

* * *

C. af Enehjelm writes : " My young Black-crested Finch (*Lophospingus pusillus*) hatched 4th May died suddenly on 29th July, a big disappointment. I still have a youngster hatched 6th July. A nest of two hatched later died when six days old. The hen is sitting again, for the fifth time, on two eggs. I have bred seven Red-headed Parrot Finches, five and two. The hen is at present sitting on four eggs. A pair of Bicheno's Finches had six youngsters in their first nest, and now have four small young ones. I have bred about a dozen Cherry Finches (*A. modesta*) from two pairs. Parrotlets (*F. passerinus*), one pair has produced seven and seven, and another pair two and three."

* * *

Captain R. W. Veitch sends news of his Alexandrine Parrakeets : " My seven-year-old pair this year reared four very good young. This is the first time I have had four in a nest. Most broods have been twos with occasional threes and I have bred them almost without a break for 18 years. The strain is a very good one and the birds are much bigger than imported birds. They have never shown any sign of attempting a second brood, and the young birds stay in the nest until almost as large as the parents, but only grow the two long central tail-feathers after they leave the nest. My twenty-two year hen is still well but laid no eggs this year."

* * *

An Exhibition of Nature Photography organized by The Royal Photographic Society as part of its Centenary Year celebrations, will be shown in the Society's house at 16 Princes Gate, London, S.W. 7, from 1st to 22nd December, 1953.

It will comprise prints and transparencies, in monochrome and colour, and stereoscopic exhibits, of mammals, birds, fish, reptiles, insects, flowers—and other forms of natural life, contributed by most of the outstanding nature photographers. The exhibition is open from 9.30 a.m. to 5.30 p.m. (Saturday 5 p.m.) but not on Sundays. Admission is free.

A. A. P.

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REVIEWS

MENABONI'S BIRDS. By ATHOS and SARA MENABONI. Michael Joseph, Ltd., London, 1952. Price 84s. net.

This book on American birds is beautifully presented and automatically falls into the class of books suitable for handsome gifts. There are no less than thirty-two plates in colour, thirteen in black and white, and a large number of smaller black and white illustrations. The originals of these have been loaned by the owners, private collectors, the National Audubon Society, the American Museum of Natural History, and the Kennedy Galleries, and were chosen as the best examples of Menaboni's work.

The book opens with an introduction giving the life story of Athos Menaboni and his wife Sara, both of whom, Italian born, migrated to America where they met, and tells of their early struggles throughout which a passionate love of birds predominated. The rest of the book is written by Sara Menaboni, who relates in diary form the experiences of herself and her husband with birds and beasts. Mrs. Menaboni gives her impressions and opinions in a light conversational style, and includes many personal details.

The majority of species depicted are not familiar to European readers, but the Mallard, Pintail, and Ring-necked Pheasant are of course similar to the European birds, and the Wood Duck, more commonly known in Britain as the Carolina, and Canada Goose, are both well known.

A brief description of the bird is given on the back of each colour plate, and similar descriptions of the black and white plates are found at the end of the book.

The reproductions of both colour and black and white plates have achieved a beautiful softness of tone, but some are not so successful as others.

P. B. S.

DIE GEFIEDERTEN : DAS SCHOENE LEBEN DER VOGEL (The Feathered Ones : the Beautiful Life of the Birds). By RICHARD GERLACH. Illustrated. Fifth enlarged edition. 1953. 401 pages. Hamburg : Claassen Verlag. DM. 16.80.

On rare, much too rare, occasions there comes to the desk of this reviewer a book on birds whose author, very fortunately, combines a keen knowledge of his subject-matter with an equally keen command of language. The result is a piece of writing which at once brings the reader not only much useful and often little-known information but also information clothed in a style of writing which is a delight to read—again and again.

Such book is the present volume—without question a work of art, not likely ever to get out of date simply because it presents the truth as the author sees it—accurately, spiritedly, charmingly. The book is filled with highly individualized observations of bird life in all its fascinating phases, mostly European birds, but also some foreigners. There is nothing commonplace or trite about either Gerlach's observations or his writing. With special enthusiasm I read his fascinating commentary on the songs of birds. I recall not a single bird book in recent years which equals Gerlach's in point of piquancy and charm of style. The American book which comes nearest to it in quality of style and in keenness of observation and description is Dawson's *The Birds of California*—a classic in its own right.

There are no dry-as-dust technical descriptions burdening Gerlach's work ; every page in it sparkles with a delightful liveliness as it tells the reader about habits, songs, and numerous other activities of birds. Later sections in the book are devoted to bird migration ; and one of the most informative, rarely found in bird books, is the one devoted to biographical sketches of eminent bird students, such as Bechstein, the Brehms, Heinroth, and others.

If you read German at all, be sure to add this book to your library. It's the sort of thing you will want to read at least once a year, if not more often.

CARL NAETHER.

* * *

NOTES

BENGALEE × CORDON BLEU HYBRIDS.

Although both Weaving Finches, *Uroeginthus* and *Munia* are well apart, nevertheless hybrids between birds of these two genera have been proved possible. A Mr. G. Johnstone residing at Tenterden (Kent) had hybrids arise from the mating of a male fawn and white Bengalee and a female Cordon Bleu. No birds, other than Canaries and a pair of Zebra Finches were in the enclosure. As far as could be observed the Bengalee appeared to undertake not only most of the feeding, but a large share of the incubation. Five eggs were deposited, and four were hatched

apparently on consecutive days. One died at 11 days, and another at 42 days, which was sent to me, and is still preserved in spirit. It is a small darkish brown bird with white chin and a few white feathers at the edge of one wing, otherwise at this period it resembled a very large dark brown juvenile Cordon Bleu without blue. The form of mandibles and tarsi and elongated appearance favoured this bird rather than its male parent. Regarding the two remaining birds, I understand that later they became more like Bengalees and the male survivor showed a reddish-purple patch on the cheek.

A. SILVER.

* * *

CORRESPONDENCE

A TUDOR BIRD-CAGE

Several readers have very kindly sent me suggestions regarding the bird most likely to have been kept in this cage. In appearance it is said to bear a resemblance to a West of Ireland lark cage, and this is probably the most likely species.

My special thanks are due to the editorial staff of *Country Life* who went to a great deal of trouble in this matter. I am informed that there is a well-known picture of a Goldfinch by Carel Fabritius, painted shortly before his death in 1654. The bird is shown, not in a cage, but perched on a box to which it is attached by a long chain from one of its legs. It is suggested that possibly the example under notice was more in the nature of a bird-box, to which the bird retired at night, being let out on a chain during the day. In the old days it was apparently not uncommon for birds to be kept in this manner.

A. A. PRESTWICH.

61 CHASE ROAD,
OAKWOOD, N. 14.

BREEDING PARROTLET HYBRIDS

Referring to the article by J. Dalborg-Johansen entitled "Breeding Parrotlet Hybrids", which appeared in the September-October issue of the *AVICULTURAL MAGAZINE*, he says: "It seems to me that the hens of both pure species and the hybrids are all alike."

The differences (other than those of plumage) mentioned by Neunzig are as follows:—

Blue-wing Parrotlet: Length, 120 mm.; beak, whitish; feet, blackish grey; eyes, grey to dark brown.

Emerald-rumped Parrotlet: Length, 130 mm.; beak, whitish; feet, flesh-coloured; eyes, brown.

He further mentions a subspecies (*Psittacula deliciosa* Ridgw.) which is smaller (120 mm.) and of a brighter green. The birds I bred (see *AVICULTURAL MAGAZINE*, September, 1926) certainly were *not* larger than Blue-wings and must have belonged to this subspecies. They came from Dutch Guiana and their pink legs definitely enhanced their beauty.

H. WILDEBOER.

"BURNBRAE," HOLDERNESS ROAD, HULL.

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Members are reminded that the publications presented or received in exchange are deposited in the Library of the Zoological Society of London, Regent's Park, London, N.W. 1.

- | | |
|---------------|---|
| Great Britain | . <i>British Birds, Cage Birds, The Ibis, Our Zoo News</i> (Chester Zoological Gardens). |
| Australia | . <i>Australian Aviculture</i> (official organ of the Avicultural Society of Australia and the Avicultural Society of South Australia).
<i>The South Australian Ornithologist.</i> |
| Belgium | . <i>Le Gerfaut, Le Monde Avicole, Natuurwereld, Ornithologie, Zoo</i> (La Societé Royale de Zoologie d'Anvers). |
| Denmark. | . <i>Dansk Ornithologisk Forenings Tidsskrift, Stuekultur.</i> |
| France | . <i>L'Oiseau, La Terre et la Vie.</i> |
| Germany. | . <i>Die Gefederte Welt, Die Vogelwarte, Die Vogelwelt, Ornithologische Abhandlungen, Ornithologische Berichte, Ornithologische Mitteilungen.</i> |
| India | . <i>The Indian Aviculturist</i> (Journal of the Indian Bird Fanciers' Club of India). |
| Netherlands | . <i>Ardea, Onze Vogels.</i> |
| South Africa | . <i>The Bokmakierie, The Ostrich.</i> |
| Sweden | . <i>Vår Fågelvärld.</i> |
| Switzerland | . <i>Der Ornithologische Beobachter</i> (Offizielles Organ der Schweizerische Gesellschaft für Vogelkunde und Vogelschutz). |
| U.S.A. | . <i>America's First Zoo</i> (Philadelphia Zoological Gardens), <i>Animal Kingdom</i> (New York Zoological Society), <i>The Auk, The Condor, The Pheasant Fanciers', Gamebreeders', and Aviculturists' Gazette, The Wilson Bulletin, Zoologica.</i> |
| Yugoslavia | . <i>Glasnik</i> (Journal of the Ornithological Institute, Zagreb). |

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NEW MEMBERS

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- M. F. BENDER, to 458 Boon Street, Cadillac, Michigan, U.S.A.
- W. GRAY, to 4 Windsor Close, Trowell, Notts.
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(Coloured plate fund)

Captain H. S. STOKES . . . £5 5s.

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Hen Princess of Wales', hen King, hen Pileated, cock Brown's Parrakeet. Will exchange a Leadbeater's Cockatoo cock for a hen.—V. J. LUGAS, Park House, West Rasen, Market Rasen, Lincs.

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Requests for rings should be addressed to the Hon. Secretary, Avicultural Society, c/o Zoological Society of London, Regent's Park, London, N.W. 1, from whom all particulars can be obtained.

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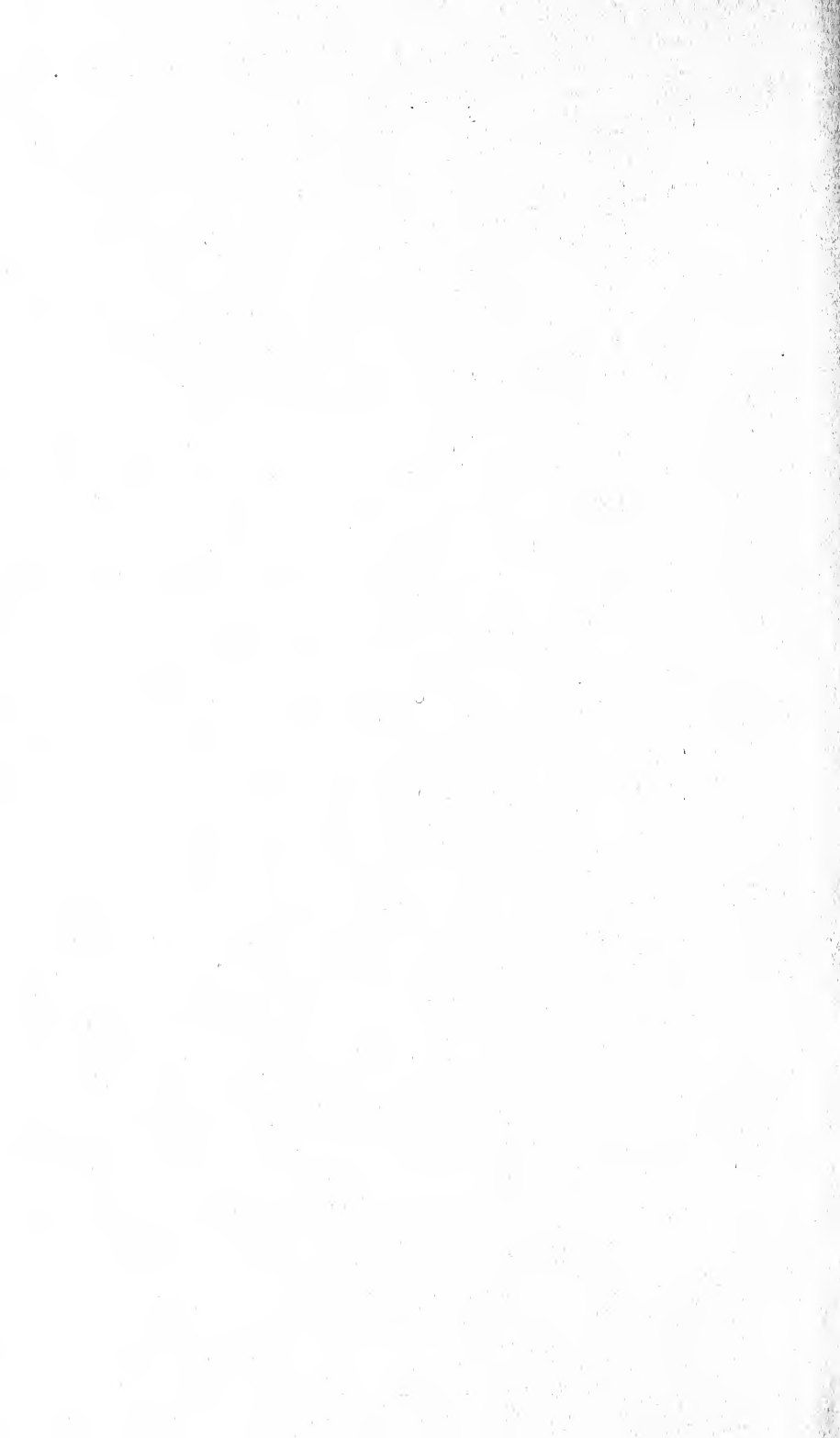
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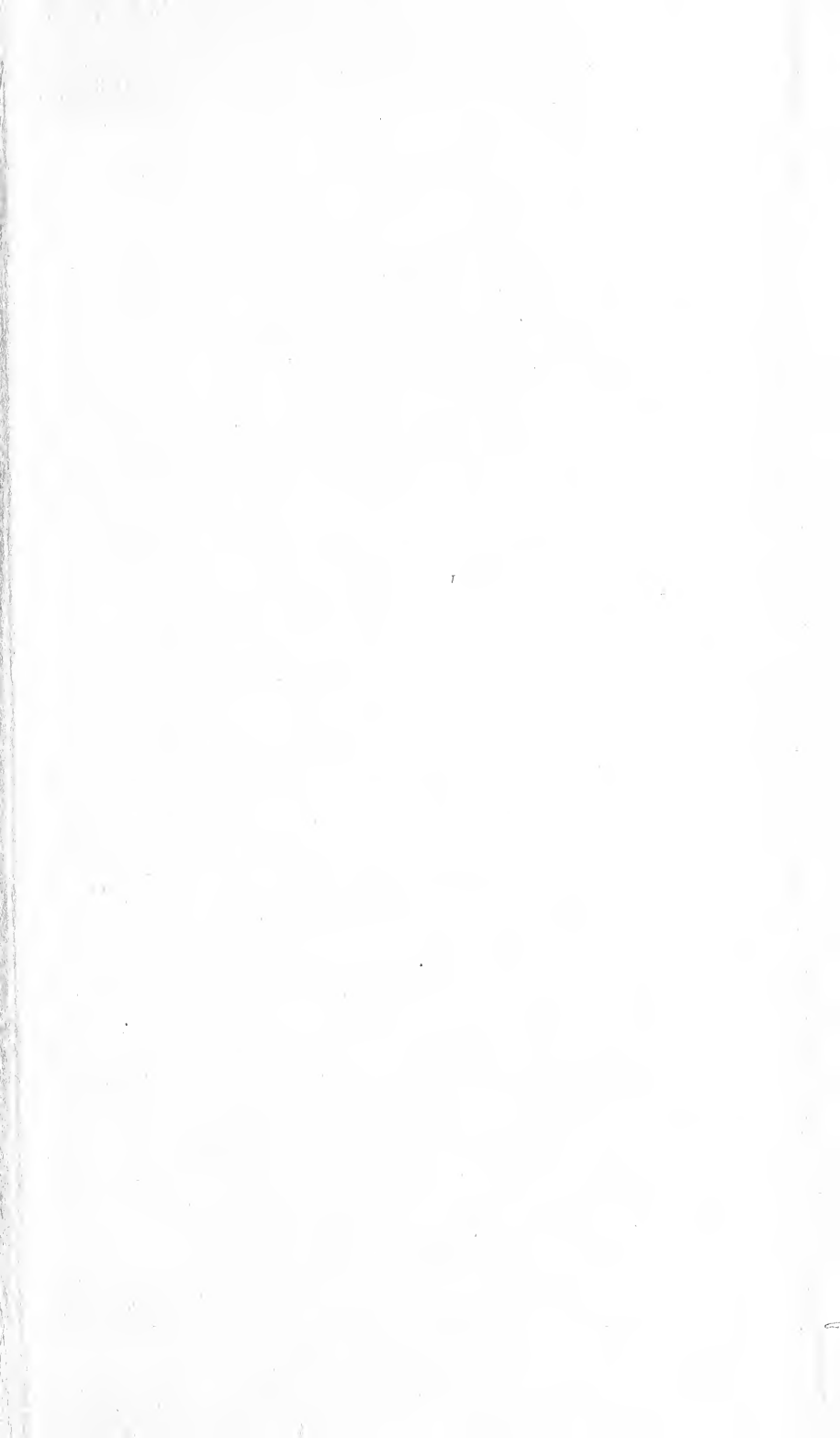
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Rule 2.—A fee of 10s. and a stamped addressed envelope MUST be enclosed with the bird.

Rule 3.—No body or skin of any bird will be returned under any circumstances whatever.

ARTHUR A. PRESTWICH,
Hon. Secretary.





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